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# AGRICULTURAL ECONOMICS AND SOCIOLOGY



# MONTHLY BULLETIN OF AGRICULTURAL ECONOMICS AND SOCIOLOGY

## PIG BREEDING AS A FACTOR IN THE EARNING CAPACITY OF AGRICULTURE IN DIFFERENT COUNTRIES ON THE EVE OF THE CRISIS

Now that the results of farm accountancy are, as stated in the previous article (1), available over a sufficiently long period, an attempt will be made at establishing comparisons between the net returns in the different countries selected and in the regions of these countries. An endeavour will be made to note the extent to which pig breeding affects the earning capacity of the farms. It is recognised that the crops and the industries of a farm are part of its structure and that their close organic connection makes it impossible to separate, economically, the results accruing from the different branches. To quote M. Ferté, Director of the Soissons Accountancy Office (France), *it is in the synthesis of all these separate accounts that the single figure is found that has an absolute and indisputable value: the one which relates to the whole.*

Everything hangs together on a farm: the earning capacity of a branch of farming influences that of another branch. "The determination of production costs by means of analytic accountancy, or double entry book-keeping," says Dragoni (2), "necessarily brings into evidence the expenses incurred in wheat growing, or pig breeding, the returns given by these branches of production, and the profit or loss to the grower from the branch of production in question. One of the returns, however, from wheat growing is to be found in the straw which provides the live stock with feed or litter, while among the essential expenses of wheat growing is to be reckoned stable manure, and use of draught animals. It is clear that the determination of each of the production costs presupposes the determination of other costs, and as we have here an insoluble problem, certain provisional costs must be adopted which will not admit of scrupulous accuracy."

The net return will be the corner stone of the whole of this discussion. Since the net return is the function at once of the gross return and of the farm expenses, by following the variations of the net return through the years, through the regions of production and the farming systems, it will be possible to discover the causes of these changes: the increase or decrease in the different returns consti-

(1) Comparative Studies of the Result of Pig Breeding in Different Countries. *Monthly Bulletin of Agricultural Economics and Sociology*. May 1935

(2) DRAGONI, *Economia agraria*, Ulrico Hoepli, Milan.



tuting the total gross return, one of which is the gross return of pig breeding; the increase or decrease in the components of the farm expenses and in the farm expenses themselves. In order to render the comparison possible among the countries, regions and farming systems, a common measure will be chosen. The net return obtained in Denmark in 1927-28, for the whole of the Danish farms, which are mainly engaged in pig breeding, will be reduced to 100 and will serve as the basis of comparison. The difference, positive or negative, will then appear between the net return of 1927-28 in Denmark and the net returns for the subsequent years in the same country; and further the difference between the net return in 1927-28 in Denmark and the net return in the other countries in 1927-28 and in subsequent years. When the net returns increase, it will be seen if it is the gross returns that have increased or the farm expenses which have diminished, or whether the farm expenses have diminished to a greater extent than the gross returns. When the net returns diminish, it will be seen whether it is the farm expenses which have increased or the gross returns which have diminished, or whether the gross returns have diminished to a greater extent than the farm expenses. The next step is from the gross return and the farm expenses to their components. The net return of the Danish farms in 1927-28 being equal to 100, the farms of Switzerland will, for example, have given in 1927-28 a net return higher than in Denmark by 103 gold francs per unit of area (1), a gross return higher by 236, and farm expenses higher by 133 gold francs per unit of area. The Austrian farms show for 1927-28 a net return higher than in Denmark by 27 gold francs per unit of area, a gross return lower by 1140 and farm expenses lower by 1167 gold francs per unit of area. For that year the gross return from pig breeding will have been in Switzerland 386 gold francs per unit of area lower, and in Austria 467 gold francs per unit of area lower than in Denmark. In 1928-29 the same return in Switzerland was 416 gold francs per unit of area and that in Austria 494 gold francs lower than in Denmark. A comparison will first of all be made between the results of the farms, taken as a whole, of the different countries under review, and it will be seen how far these results, and in particular those of pig breeding, have varied from 1927-28 to 1931-32; then, placing these results in relation to 100 gold francs of net return in Denmark in 1927-28, a comparison will be instituted between the results of the farms of different regions and of different farming systems. The situation of agriculture and of pig breeding in each of the countries under review will thus become clear; finally, the examination will be undertaken of this situation in the regions and in reference to the farming systems.

If it be objected that the choice of the year 1927-28 as base year is somewhat arbitrary, the reply is that it is not practicable, using the available accountancy results, to go back beyond 1927-28, and that from 1930 onwards in certain

(1) The unit of area conventionally adopted in our calculations corresponds to the area, which, in Denmark, gives a net return of 100 gold francs, i. e., 1.64 ha. The adoption of this conventional unit in our enquiry follows necessarily from the fact that, as the point of departure in our comparisons, we have adopted 100 gold francs of net return in Denmark in 1927-28.

TABLE I — *Margin (positive or negative) between the net return the gross return and the cost of production in eleven countries of Europe in 1927-28 in comparison with Denmark*  
*The net return of the Danish farms is reduced to 100 gold francs*

	Gross Return					Farming Expenses							Interest on capital	Cost of production
	Net Return	Pig	Milk and milk products	Stock breeding livestock	Cereal crop	Other livestock	Total	Laborer	Fertilizer	Seeds and forage	Taxes	Other expenses		
Denmark	100	57	69	203	114	11	1-1	116	68	64	22	1661	268	1929
Netherlands Overijssel	—	253	78	41	9	91	390	104	55	164	50	34	317	21—296
Switzerland	+ 103	386	12	14	28	432	236	344	30	477	10	312	133	317+450
Austria	— 27	47	560	133	21	4	1140	302	58	646	45	116	1167	124—1291
Germany	— 102	—	—	—	—	—	940	233	6	585	20	8	844	—
Norway	— 48	422	126	1	128	151	232	71	3	391	54	122	249	185—64
Sweden	— 62	534	30	103	116	34	895	209	18	226	54	16	923	79—902
Finland	— 21	533	432	190	—	58	1240	504	35	613	54	13	1199	41—1310
Poland	+ 92	496	503	149	70	34	102	411	48	648	55	132	1294	90—1384
Lithuania (1)	— 72	539	648	230	2	51	1439	480	55	604	57	171	1427	164—1591
Latvia	— 70	539	600	236	61	70	1506	467	55	665	58	191	1436	211—1647
Estonia	— 68	541	618	224	65	37	1485	451	61	661	59	175	1417	203—1620

(1) In 1928

TABLE II. — *Distribution of the Arable and Cultivated*

Countries	Cereals						Root crops			
	Wheat	Rye	Barley	Oats	Other cereals	Total	Potatoes	Sugar beet	Other root crops	Total
	%	%	%	%	%	%	%	%	%	%
Denmark . . . . .	4 22	6 98	<b>12.69</b>	<b>15.61</b>	9 81	49 31	2 73	1 61	14 95	19.29
Netherlands . . . . .	6 81	<b>21.30</b>	2 86	<b>16.07</b>	6 07	53 11	<b>18.68</b>	7 67	10 52	36.87
Switzerland . . . . .	<b>10.18</b>	3 92	1.28	4 04	4 02	23 44	9 46	0 32	2 65	12.43
Austria . . . . .	10 61	<b>19.90</b>	7 67	<b>16.15</b>	3 69	58 02	9 51	1 27	4 24	<b>15.02</b>
Germany . . . . .	8 53	<b>22.82</b>	7 19	<b>16.85</b>	3 97	59 36	<b>13.60</b>	2 19	5 58	21.37
Norway . . . . .	1 45	1 37	<b>8.88</b>	<b>14.22</b>	0 99	26 91	7 31	—	2 21	9 52
Sweden . . . . .	6 11	<b>7.43</b>	3 29	<b>18.76</b>	6 16	41 77	3 76	1 10	2 88	7.74
Finland . . . . .	0 83	<b>10.62</b>	5 —	<b>20.83</b>	0 50	37 78	3 27	0 13	1 57	4 97
Poland (3) . . . . .	7 43	<b>31.48</b>	6 10	10 82	3	58 83	<b>13.33</b>	1 10	2 04	16 47
Lithuania . . . . .	5 12	<b>19.04</b>	7 47	<b>11.76</b>	6 19	49 88	5 27	—	2 14	7.41
Estonia . . . . .	2 63	<b>14.52</b>	11 66	<b>14.23</b>	7 08	50 12	6 97	—	1 34	8 31
Latvia . . . . .	2 55	<b>15.89</b>	10 63	<b>18.44</b>	4 34	52 05	1 74	—	4 72	9.46

(1) The figures for each country are taken from the International Yearbook of Agricultural Statistics — only. — (4) Apart from grazing lands, which are included in the other lands of a total area of 22,564,073 hectares.

countries and from 1931 in other countries the character of economic phenomena became entirely different from that with which we were formerly acquainted. The established order has been indeed radically changed since the word "crisis" became familiar. To protect their agriculture, the countries of the whole world have equipped themselves with import duties, export premiums, quotas, and are surrounded with customs barriers which become increasingly formidable. All the efforts of the Governments have however been rendered ineffective by the change in the scale of economic phenomena. Agricultural conditions have become much more complicated and the laws which govern economic relations have greatly changed, so that forecasts become more difficult than ever before.

Farm accountancy is the instrument that enables us to measure the effects of economic revolutions on the farm, and—with the help of supplementary information—frequently to trace them to their causes. Directed by accountancy, studies may be made which when brought into relation with each other will present as precise and clear an image as possible of the situation of agriculture in the different countries.

*Area in percentage of total area in 1927-28 (I).*

Industrial crops	Sown grasslands	Fallow etc	Bare fallow	Total	Arable land in % of cultivated land					Grassland and pasturage in % of cult. land	Gardens and vineyards	Cultivated land
					Cereals	Root crops	Sown grasses	Fallow etc	Total in % of cultivated land			
%	%	%	%	%	%	%	%	%	%	%	%	%
0.11	28.10	1.75	1.44	100 —	43.99	17.21	25.07	2.94	89.21	10.79	—	100 —
3.62	6.34	—	0.16	100 —	19.53	13.55	2.29	1.39	36.76	50.52	12.72	100 —
0.01	64.12	—	—	100 —	5.40	2.86	14.77	—	23.03	76.33	0.64	100 —
0.49	21.85	—	4.62	100 —	25.61	6.63	9.64	2.26	44.14	53.02	2.84	100 —
0.43	13.19	—	5.65	100 —	41.76	15.03	9.28	4.28	70.35	27.28	2.37	100 —
—	62.68	—	0.89	100 —	19.46	6.88	45.34	0.64	72.32	26.65	1.03	100 —
0.01	42.22	—	8.26	100 —	33.11	6.13	33.46	6.55	79.25	19.68	1.07	100 —
0.25	47.55	—	9.15	100 —	24.48	3.19	30.56	6.24	64.27	35.55	0.18	100 —
0.98	8.53	15.19	—	100 —	43.65	12.22	6.33	12 —	74.20	25.80	—	100 —
3.19	16.46	23.06	—	100 —	31.54	4.69	10.41	16.60	63.24	33.75	3.01	100 —
3.48	17.83	1.86	18.40	100 —	18.27	3.03	6.50	8.65	36.45	63.55	—	100 —
3.37	16.43	—	18.69	100 —	25.95	1.71	8.19	11 —	49.85	49.52	0.63	100 —

(2) Under fallow are included the crops for green manuring and the grazing on arable lands (3) Peasant farms hectares — (5) Apart from grazing lands which are included in the forests of a total area of 24,563,721

A beginning may be made by seeing what was the situation in 1927-28 in the countries under review. In Denmark the figures are as follows, expressed in gold francs per unit of area:

(a) Net return . . . . .	100	(c) Farming expenses	
(b) Gross return:		labour . . . . .	616
pigs . . . . .	577	fertiliser . . . . .	68
milk and milk products . . . . .	691	seeds and forage . . . . .	688
stock farming . . . . .	263	taxes . . . . .	64
cereals and root crops . . . . .	114	other expenses . . . . .	225
other branches . . . . .	116		
Total . . . . .	1,761	Total . . . . .	1,661
(d) Interest on capital . . . . .	268		
(e) Cost of production . . . . .	1,929		

TABLE III. — *Production per hectare (\*) in 1927-28 (1).*

Countries	Wheat	Rye	Barley	Oats	Cereals (2)	Potatoes	Sugar		Fodder		Hay from sown grasses		Hay from natural meadows		Milk (3)		Cattle (live weight) (3)		Pigs (live weight) (3)	
	q	q	q	q	q	q	beet	q	beet	q	q	q	q	q	kg	kg	kg	kg	kg	kg
Denmark . . . . .	23.1	14.4	23.6	21.6	20.7	78.7	258.4	505.7	—	—	57.0	37.5	—	—	1,557	107	—	—	131	—
Netherlands . . . . .	27.1	17.4	27.4	20.6	23.1	158.1	261.0	—	—	—	—	—	—	—	—	—	—	—	145	—
Switzerland . . . . .	21.8	20.3	18.8	20.4	20.3	145.2	303.0	—	—	—	—	—	—	—	1,728	146	—	—	52	—
Austria . . . . .	15.9	13.3	16.1	14.1	15.3	155.5	295.7	311.5	—	—	54.9	37.1	—	—	295	35	—	—	31	—
Germany . . . . .	18.8	14.5	17.9	18.3	18.7	133.4	250.0	344.6	—	—	54.7	43.5	—	—	436	33	—	—	38	—
Norway . . . . .	16.6	10.5	16.8	18.9	17.2	121.2	—	—	—	—	45.7	23.1	—	—	1,380	90	—	—	51	—
Sweden . . . . .	19.0	13.9	10.2	15.7	10.2	67.7	243.8	268.9	—	—	41.3	13.6	—	—	957	65	—	—	20	—
Finland . . . . .	16.2	14.3	13.2	14.1	14.4	107.5	180.8	—	—	—	31.0	10.9	—	—	719	19	—	—	17	—
Poland . . . . .	12.2	10.2	11.4	10.8	11.1	159.7	179.2	198.0	—	—	42.6	28.7	—	—	352	15	—	—	41	—
Lithuania . . . . .	12.0	10.7	9.5	7.8	10.0	90.9	—	—	—	—	41.5	20.0	—	—	160	11	—	—	18	—
Estonia . . . . .	10.9	11.5	7.9	6.7	9.2	104.0	—	170.3	—	—	26.9	10.0	—	—	212	14	—	—	18	—
Latvia . . . . .	12.2	10.1	7.0	5.8	8.8	83.9	—	—	—	—	30.8	16.2	—	—	397	12	—	—	15	—

(1) The figures are taken from the International Yearbook of Agricultural Statistics — (2) Including other cereals — (3) Calculated on the basis of the figures of *Farm Accountancy Statistics* — (4) In 1920, 30 — (5) For crops per ha of *varian* area, for livestock production per ha of area as taken by the Accountancy Offices

For the other countries, there are shown on Table I (p. 243) the plus values and the minus values which are found on comparing the results with these base figures.

These figures, however, by themselves tell us nothing: to reveal their significance, use must be made of the supplementary information to be obtained from the *International Yearbook of Agricultural Statistics*. In Table II there will be found the percentages of the arable area and of the area of land under cultivation which supply information on the extent of the crops; in Table III the figures relating to production per hectare are given. The Yearbook does not contain full data of the production of hay from sown grasses and from natural meadows, nor of sugar beet production. In Table IV the prices in gold francs of the main agricultural products are shown according to data supplied by the Accountancy Offices. For the cereals use will be made of the method employed for calculating index-numbers. Table V which is also based on data supplied by the Accountancy Offices, shows approximately the quantities of cereals and of potatoes produced, sold and transformed on the farm, and the proportion of the transformed quantities of cereals and of potatoes in relation to the quantities produced. Table VI, relating to the employment of labour in man-days per ha., is also based on accountancy data.

TABLE IV. — *Price in gold francs in 1927-28  
of the chief agricultural products (1).*

Countries	Cereals	Potatoes	Sugar beet	Beef	Pig meat	Milk	Butter	Cheese
	q	q	q	kg	kg	litre	kg	kg
Denmark . . . . .	27,59	18,84	3,47	1) 0,69	2) 1,80	0,21	4,19	1,17
Netherlands . . . .	24,18	15,02	—	3) 2,06	1) 1,37	—	4,33	4) 2,21
Switzerland . . . . .	38,34	14,34	—	1) 1,70	1) 2,22	0,24	4,81	2,50
Austria . . . . .	26,97	17,12	—	1) 1,76	3) 2,16	0,27	3,90	—
Germany . . . . .	29,52	4,55	—	1) 1,46	1) 1,47	0,23	4,50	2,94
Norway . . . . .	29,51	21,83	—	3) 2,16	3) 1,84	0,25	5,07	5) 3,94
Sweden . . . . .	26,80	19,07	4,01	1) 0,86	1) 1,27	0,23	4,15	2,13
Finland . . . . .	26,07	9,14	—	1) 1,14	3) 1,54	0,22	4,06	2,19
Poland . . . . .	24,68	5,59	—	1) 1,73	1) 1,19	0,17	—	—
Lithuania . . . . .	—	—	—	—	—	—	—	—
Latvia . . . . .	25, —	—	—	1) 0,92	3) 1,57	—	3,19	—
Estonia . . . . .	25,67	5,85	—	1) 0,74	2) 1,22	0,21	3,74	5) 3,39

(1) Live weight. — (2) Bacon. — (3) Meat. — (4) Gouda. — (5) Emmental type.

Comparison is facilitated by maintaining in all the tables the same grouping of the countries. Clearly marked tendencies will be noted, and an attempt will be made to define the character of the agriculture of the countries in question.

(1) Material supplied by the Farm Accountancy Offices

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In Table II and III, the important crops and the high yields obtained in quintals per hectare have been shown in thick type, country by country.

TABLE V. — *Quantities of cereals and potatoes produced, sold and transformed on the farm per hectare of area (1), in 1927-28.*

Countries	Cereals			Potatoes		
	grown	sold	sold in % of cereals grown	grown	sold	sold in % of potatoes grown
	q	q		q	q	
Denmark . . . . .	9.10	1.5	17	1 92	0.8	42
Netherlands (Overijssel), . .	4 98	2 6	53	11 98	—	—
Switzerland . . . . . (2)	1 13	1 4	—	3 25	2.4	73
Austria . . . . .	2 56	1.8	70	4 22	0 5	11
Germany . . . . .	8 57	6 9	80	14	5 6	40
Norway . . . . .	3 37	2 3	68	0,41	3 7	57
Sweden . . . . .	5 82	4 2	73	2 01	0 7	34
Finland . . . . .	3 55	1 8	50	3 53	1 1	31
Poland . . . . .	4 67	3 4	73	10 22	3 5	34
Lithuania . . . . .	3 15	—	—	3 03	—	—
Latvia . . . . .	1 88	0 8	43	1 67	—	—
Estonia . . . . .	1 55	0 8	52	2 40	1 2	49

(1) Area taken by the different Offices as basis of the calculations of accountancy results, some Offices including forests, waters, etc., while others exclude these. The great differences in the figures per ha. from one country to another are thus explained. — (2) The area has been estimated.

TABLE VI. — *Labour. Days per hectare and labour costs per man-day in 1927-28 (1).*

	(1) Labour days per ha	Labour Costs per man day in gold fr
Denmark . . . . .	35 52	8.39
Netherlands (Overijssel) . . . . .	60 —	5.27
Switzerland . . . . .	75 —	7.81
Austria . . . . .	64 25	2.98
Norway . . . . .	70 —	5.90
Finland . . . . .	36 58	4.25
Poland . . . . .	60 61	1.87
Lithuania (2) . . . . .	31.24	2.65
Latvia . . . . .	25.50	3.57
Estonia . . . . .	26 60	3.55

(1) For Germany and Sweden information is not available. — (2) In 1928-29.

Denmark is the country where the percentage of arable lands is the highest and in consequence the one in which cultivation is most intensive. Cereals occupy 43.99 per cent. and sown grasses 25.07 per cent. of the cultivated land. Barley, oats, fodder beet, hay from sown grasses are of primary importance in the feeding of stock. In spite, however, of the fact that cereals occupy nearly half the cultivated lands, recourse has to be had to imports of grain and of flour; tubers and fodder root crops bring in profits much higher than the return from cereals. These crops, however, do not supply sufficient stock feed and Denmark imports large quantities of concentrated feeds. The Danish farmer endeavours to obtain large returns from dairying and to carry on a flourishing business in pig fattening.

The distribution of the gross return and of farming expenses in Overijssel, most nearly resembles that found in Denmark with this difference that in Overijssel more importance is attached to stock raising than to pig fattening. The nature of the country has given this direction to the Overijssel farming. The permanent meadows in the Netherlands occupy the half of the cultivated land, and arable lands a third. The chief crops are potatoes and oats. The rural life is determined by a close association between stock farming and cultivation. The small farmer ensures the fertility of his lands by keeping a large number of animals, thereby obtaining plenty of stable manure. The stock farming has given a much higher gross return than in Denmark, the prices of live stock and the production per hectare having been higher. In Overijssel, 47 per cent. of the cereals produced were transformed on the farm itself, while in Denmark 83 per cent. of the cereal crops were so transformed.

The gross return from pig breeding was in Overijssel lower by 253 gold francs than in Denmark. The production per hectare seems to have been higher in Overijssel, but the price level was lower. It is largely to this difference in the earning capacity of pig breeding that is due the margin of 390 gold francs between the gross return of the farms of Overijssel and the gross return of the Danish farms.

Labour, in Overijssel, is much cheaper than in Denmark, and although more labour is required by the farming the labour costs were lower than in Denmark. The same is true of fodder; in Denmark the fodder consumption is enormous and very large quantities are purchased while much is also produced in the country itself. Of the twelve countries under review, it is, however, Overijssel which after Denmark consumes the most fodder; the consumption figures in the other countries are considerably lower. The other expenses, apart from those for fertilisers, also fall below those in Denmark, but the lower labour costs and lower expenditure on fodder were not sufficient to compensate for the lower gross return from pig breeding, with the results that the net return was 73 gold francs less than that of the Danish farms.

In Switzerland the proportion of permanent meadow land is very high, owing to the great extent of mountain and pasture land. The subsidiary crops are wheat and forage mixtures. In 1927-28, the net return of the farms was 103 gold francs higher than that of the farms of Denmark. The gross return and the farm expenses were both higher than in Denmark, the gross return to



a larger extent than the farm expenses. The value of dairying products is nearly the same in the two countries. Denmark produces twice as much pig flesh per hectare as Switzerland, while in Switzerland on the other hand cattle farming is more intensively carried on than in Denmark. Prices of beef are higher in Switzerland than in Denmark, and in this respect the advantage is with Switzerland.

Of the two countries Switzerland exports the larger quantities of potatoes grown, fewer being required for the comparatively unimportant pig breeding industry.

The factor however which weights the balance in favour of Swiss agriculture, is that in Switzerland fruit-growing, vine growing and other special branches are favoured by the climatic conditions, and here the gross return is 400 francs higher than in Denmark.

Passing on to farm expenses, it will be seen that labour costs and current expenses are much higher in Switzerland than in Denmark. Labour is nearly as dear in Switzerland as in Denmark, and the Swiss farmer employs twice as much labour per hectare as the Danish farmer. Costs of living are also higher in Switzerland, which explains the high current expenses. At the same time, to produce a gross return higher than that in Denmark, the farms of Switzerland made smaller purchases of fodder in comparison with the same purchases in Denmark. The total farm expenses did not rise in Switzerland to an excessively high level, and the gross return made it possible to retain a margin of 203 francs per unit of area over the farm expenses.

Austria stands high in respect of the cultivation of rye and oats. Production per hectare for Austria mainly relates to the regions of Lower Austria, so much so that in order to make a true comparison of this production with that of the other countries, some correction should be made, taking into account the fact that over the country as a whole the area of natural grasslands and of pastures of the mountainous regions accounts for more than half the area of cultivated land. The production of milk and of pigs remained much behind that of Denmark; stock breeding was also less profitable. The more prosperous vine growing, fruit growing and forestry could not counterbalance this disadvantage, and the gross return for Austrian farms was 1140 francs lower than that of Danish agriculture. On the other hand, Austria farms produce at a much cheaper rate; labour costs are much lower in Austria than in Denmark; the expenditure on fodder by Austrian farmers was less by 646 francs; current expenses were lower, and the result was a net return which is 27 gold francs per unit of area higher than that of Denmark.

The farms of Germany showed a somewhat higher gross return than that of Austria, but the German farmer produces at a higher cost than the Austrian peasant farmer; his expenditure on fodder, labour, and farm upkeep is higher. Austria, by producing cheaply, succeeded in obtaining a higher net return than that of Denmark; Germany with too high an expenditure obtained a negative net return. Undoubtedly the gross return might have been higher, and this was the case in the subsequent years. On extending the survey to these later years, the enquiry will become more complete and more valuable, owing to the fact that the components of the gross return will be known.

Norwegian agriculture is very similar to that of Switzerland. The proportion, in relation to the arable area, of sown grasses, is equally high in Norway as in Switzerland. In Norway, however, barley and oats have a greater importance than in Switzerland in stock feeding. The moisture of the climate favours the cultivation of oats, the chief cereal. Barley is found in the large inland valleys and in Nordland. Rye cannot be grown successfully. Wheat occupies 1.5 per cent. only of the cultivated land. There is a very marked development in Norway in the direction of intensive stock breeding and dairying. As in Switzerland, cattle breeding, cultivation of cereals and of root crops and the "other branches" have given higher gross returns than in Denmark on the other hand, pig breeding and dairying have given lower gross returns than in Denmark. The gross return of Norwegian farms shows tendencies very similar to those of the farms of Switzerland. However, the gross returns from pig fattening, from dairying and from other branches are lower than in Switzerland, and the total gross return, instead of being, as in Switzerland, higher, is lower than in Denmark. The farming expenses have also the same tendencies as in Switzerland; but in Norway, labour is cheaper, ordinary expenses, expenses of upkeep and of depreciations are less heavy, all of which compensates in a measure for the inadequacy of the gross return. Actually, the net return, which is lower than that of Switzerland, is none the less higher than that of Denmark.

Soil conditions are more favourable to cropping in Sweden than in Norway; especially in the Skåne and the agricultural plains of Central Sweden. Barley and oats, as in Denmark and Norway, have an important place in stock farming. The principal subsidiary crop is rye. The progress in the dairying industry in Sweden has resulted in an increase in pig breeding. Sown grasses occupy an important place in the rotation, the express purpose being that of maintaining the milk production.

The agriculture of Finland so closely resembles that of Sweden that the two can be studied at the same time. In Finland in consequence of the heat of the summer and the prolonged daylight hours of that season, the limit of cultivation is pushed far North. Rye is grown up to Lat. 68° N.; the limit for oats is between 64° and 65°; cultivation of potatoes is carried nearly up to the Arctic circle. Like Sweden, sown grass forms in Finland the basis of the system of rotation and barley and oats form the secondary crops. In 1927-28 the return from cereals and root crops in Finland was less satisfactory than in Sweden, a fact which seems to be due less to the yields than to the prices. The gross return from stock breeding and from dairying is lower in Finland than in Sweden. Sales of products of the land are less considerable in Sweden than in Finland. Farm expenses are higher in Sweden, especially labour costs, current expenses, costs of upkeep and depreciations, and it is for this reason that, without reaching the Danish level, the net return of farms in Finland is higher, although not much higher, than that of Swedish farms.

Finally, the agriculture of four countries, Poland, Lithuania, Latvia, and Estonia, may be treated together, since in these countries the farming is carried on much the same lines.

In Lithuania, Latvia, and Estonia, rye and oats, in Poland rye and potatoes are the main products of the soil. In Poland, one-third of the potato crop is fed to pigs. In 1927-28, the gross returns under every head are slightly higher in Poland than in the three neighbouring countries; it is for this reason that the net return was in Poland higher than for the Danish farms, whereas in the other three countries the net return did not attain the Danish level, the costs of production in the four countries being, practically, the same. Of all the countries under review these four produce at the lowest cost, the next in order are Austria, Finland, then Germany and Sweden; next come Overijssel and Norway, then Denmark and finally Switzerland. The less the expenditure, however, the lower, as a rule, is the level of the gross return. The countries where farm expenses are lowest—Poland, Lithuania, Latvia, Estonia, Finland and Austria also have the lowest gross returns. Those with higher farm expenses—Switzerland, Norway, Denmark—obtain higher net returns. The countries with the most favourable balance, that is to say, with the highest net return Switzerland, Austria, Norway, Poland—owe it to their more favourable geographical situation (in the case of Switzerland, Austria and Norway), to a better soil and more favourable price conditions. Switzerland is the only country which has a higher gross return than that of Denmark, owing to its fruit and vine growing. The farm expenses of the countries with intensive agriculture are highest, but it is not always these countries which have the most favourable balance. The well-known law of diminishing returns comes into play: a higher gross return is not obtained by going beyond a certain level of expenditure. This level, as has been seen, is not everywhere the same. It is difficult, if not impossible, to establish it, and it is not proposed to attempt it here. It is more useful and of more interest to see how the farming, and more especially the pig breeding in a given country has taken advantage of favourable market conditions or resisted the disastrous effects of the crisis. This enquiry will form the subject of succeeding articles.

JOS. DESLARZES.

## THE DEVELOPMENT OF THE AGRARIAN REFORM IN SPAIN.

At the time of the initial application of the agrarian reform in Spain a detailed note on the Law dealing with this fundamental problem was published in this Review (1). Three years have now elapsed since the introduction of the reform, and now that some progress has been made towards realisation of the objects in view, it would seem advisable to make some comment on the more striking facts of those three years during which a number of further measures relating to the reform have been enacted.

The reform has undoubtedly been carried out with comparative slowness but the delay has been necessitated by actual conditions, since the problem

(1) Agrarian Reform in Spain. *Monthly Bulletin of Agricultural Economics and Sociology*. International Institute of Agriculture. April 1934 No. 4.

to be solved is far more complicated than that of the post-war agrarian reforms. In almost all the countries of Europe the purpose of the agrarian reform was to check, by increasing the total extent of the land held in small or peasant ownership, the growing tendency of the rural population to become a proletariat.

In Spain over a large part of the territory, the problem was of much wider scope: it was at once an economic, a social and a technical problem of immense range. It was essential completely to modify agricultural conditions over a large part of the territory of Spain, since in order to effect the desired grouping of parcels of land and to arrange for settlement plots such as would ensure the real efficacy and utility of the reform, it was necessary in the majority of cases actually to create these plots by means of large scale hydraulic and forestry engineering works. This special character of the Spanish agrarian reform is in fact the real explanation of its somewhat slow development.

The urgency of the need for the reform, it is true, had not been felt equally in all the Spanish provinces alike. In many of these it had been possible to defer application for a considerable time, since, in the absence of a landless class, the problem was not so much one of assignment of lands as of new enactments in respect of land tenure such as would bring the article of the Civil Code on this subject into fuller correspondence with the post-war changes in social conditions and in ownership. In other provinces, although there was much cultivable land and a peasantry well equipped with farm requisites and work animals, the land, in consequence of the farming methods followed, was lying waste or cultivated only in part, while the peasants had no holdings on which, with the help of their own equipment, they might have earned their livelihood. In other provinces it was necessary to carry out a complete land reclamation before any settlement of landless persons could be effected.

To the first group of provinces the law on agrarian reform was applied only recently in the course of the present year 1935 by an introduction of the provisions of the law on tenancy, which met the case for the time being. The second group of provinces was that which was most directly affected by the reform; in these there were lands and cultivators, and all that was needed were certain legal measures to bring the latter into direct contact with the lands. The development of the reform was more retarded in provinces where a radical change in the character of the soil was essential if the land was to be brought into a state to make any distribution possible. In the meantime the situation was met by employing on the works of land drainage and afforestation the rural element which would later cultivate the reclaimed lands.

The working of the reform is most plainly seen from the laws enacted for its gradual introduction and any judgment should be based on the practical results of these enactments. Some statement of the principles involved will be given here and the actual position will be examined with the help of the official statistics. Before however setting out this legislation as a whole, mention may be made of a law prior to the agrarian reform which contributed at least in part to the solution of the vast problem raised by its application, *i.e.*, the law on the confiscation of the rural property belonging to the persons who took part in the revolutionary movement against the regime on 10 August 1932.

*The Law on the Confiscation of the Property of the Nobles.* — The Spanish Cortes were on the point of bringing to an end the discussion of the law on the bases of the agrarian reform, when a political event, the revolutionary movement of 10 August 1932, gave the signal for the enactment of the law of 25 August 1932 in virtue of which all the rural property was confiscated that had belonged to those persons who took part in this movement. Thus, before the reform was finally decreed, the State had already at disposal an area of lands for assignment, and the expropriation of these, as being confiscated lands, involved no compensation of any kind.

The method adopted, in accordance with the provisions of the law, for declaring expropriable all these lands, was as follows: the courts drew up a list of all the persons who had taken part in the revolutionary movement and forwarded it to the Land Registry Offices, where within a certain period reports were prepared in which were shown the estates belonging to those implicated in the movement. These reports were referred to the Minister of Agriculture who ordered by decree that these lands should be registered under the name of the State in the respective registers of land ownership. The Minister further instructed the Inspectorate of the Social and Agricultural Services, in view of the fact that the Institute of Agrarian Reform had not yet been constituted, to act as guardian administrator of the confiscated lands, till such time as the Institute should be established.

The law provided that if the confiscated lands had been cultivated by their owners, these latter should pass into the category of tenants, *i. e.*, they would lose their rights as owners. Further, in regard to lands that were rented, the tenant would continue to observe his side of the agreement, but that in both cases the State would become the owner and would collect the sums due as rent. If the owner had no other means of subsistence apart from such as are derived from the confiscated property, and if he was not capable of farming the land himself in direct tenancy, the law assigned him a pension sufficient to ensure him subsistence. It will be seen that this law, although severe, was also humane in that it allowed the owner to continue to farm his land, although as a tenant only, if he had formerly done so; while if the loss of the ownership would reduce him to poverty, the law assured him maintenance.

The consequences of this law of confiscation may however now be considered in practice. Cases in which the farms were directly worked by their owners were very rare and even in some of these cases, the owners refused to accept their new rating as tenants. Confiscation in no case involved destitution, as the owners belonged to the noble classes and the farms confiscated represented in most cases a very small part of their patrimony. The number of the farms held in tenancy was quite small as the lands were for the most part either *latifundia* or pleasure grounds. In consequence the State came into possession of a large area which could be used for the purposes of the agrarian reform.

On taking over these lands, the State proceeded to survey the area and to form parcels for assignment to the new farmer settlers. These operations were begun in 1933 and went on throughout 1934 and are being carried on in the present year of 1935.

According to the figures supplied by the Institute of Agrarian Reform (1) the number of individuals affected by the confiscation was 99 with a total area of 577,359 hectares.

The confiscated lands were distributed throughout the whole of Spain with the exception of four provinces in which there were no lands belonging to those concerned in the revolutionary movement, *viz.*, Almeria, Burgos, Orense and Teruel.

The 577,359 hectares referred to above represent the total area of rural estates which could be expropriated under the law directed against persons involved in the revolutionary movement. Actually, owing to special conditions of certain of these estates and on account of the extent of the work that it would be necessary to carry out in order to subdivide them and to establish the new settlers thereon, the whole of the area confiscated has not been assigned.

The following figures indicate the course of the expropriations and of the settlements made on the areas confiscated up to 31 December 1934

Date of expropriation	Number of estates expropriated	Area (hectares)	Number of persons settled
31 March 1934 . . . . .	92	41,046	4,958
31 July 1934 . . . . .	224	33,025	2,314
31 December 1934 . . . . .	332	15,062	1,337
Totals . . . . .	648	89,133	8,609

It appears from these figures that out of the 577,359 hectares liable to expropriation in virtue of the law of confiscation there have been actually expropriated 89,133 hectares corresponding to 648 estates and that there have been established thereon 8,609 new settlers

On the other hand there are other estates equally coming under the law of confiscation which have not yet been finally expropriated on account of technical difficulties in regard to the formation of lots in the full sense and on which temporary occupancy only has been arranged. The following figures relate to these lands

Date of expropriation	Number of estates expropriated	Area (hectares)	Number of occupants established
31 March 1934 . . . . .	21	12,325	1,564
31 September 1934 . . . . .	10	4,334	582
31 December 1934 . . . . .	30	13,045	1,505
Totals . . . . .	61	29,704	3,651

(1) Boletín del Instituto de Reforma agraria July 1934, No 25

Grouping the preceding figures, which have been supplied by the Institute of Agrarian Reform and therefore may be regarded as official, the total number and area of estates already expropriated, the number and area of lands temporarily occupied and the number of farming families settled, are as follows:

Estates	Number	Area (hectares)	Number of families settled
Expropriated . . . . .	648	89,133	8,609
Occupied. . . . .	61	29,704	3,651
General Total . . .	709	118,837	12,260

The measures taken by the Government in virtue of this law have done much, as already stated, to facilitate the application of the reform. Moreover, the fact that some part of the areas confiscated is situated in the region most severely affected by the unemployment of farm workers, made settlement easy to arrange. In consequence an area, formerly consisting in latifundia, or property of low productivity, has been brought under cultivation, and in this way benefit has accrued to the nation as a whole and to the class of farm workers.

On the other hand, the loss to the owners affected by the confiscation will be temporary only, since once the moral effect of the revolutionary movement had passed and the nation had been guided into a policy of more moderate tendencies, a law was introduced by which compensation was granted to the owners of lands confiscated under the previous law.

*The Institute of Agrarian Reform and the Provincial Councils (Juntas).* - The law of the agrarian reform, under *Bases* 2 and 10, provided for the establishment of the Institute and of the Provincial Councils. By a decree of 4 November 1932 the former was brought into existence and the Councils were constituted by a decree of 21 January 1933.

The application of the law of the reform is entrusted to the Institute of Agrarian Reform, the function of which is to effect thereby a transformation in Spanish rural organisation. The Institute is a corporate body with complete economic autonomy for the accomplishment of its objects. The administration is in the hands of an executive committee and a general meeting composed, in both cases, of agricultural experts, legal experts, representatives of official agricultural credit, landowners, farm workers and representatives of the Government.

The Institute receives as endowment for the expenses of application of the reform an annual sum of 50,000,000 pesetas charged on the budget. In addition, if circumstances permit, it may receive other State advances, effect financial operations and issue mortgage bonds secured by real property, such values being negotiable on the Stock Exchange. The Institute enjoys exemption from all classes of taxation in the operations it carries on.

The Provincial Councils which have been set up and which function in all the provinces of Spain, are organisations subordinate to the Institute and

co-operating with it in the execution of, the provisions of the law of reform. In spite of their legal dependence on the Institute the Councils have wide powers of an informative character and are authorised to carry out, by delegation, any recommendations and resolutions of the Institute to which it does not itself give effect.

In practice during the three years of the application of the reform the Institute met frequently for the purpose of enquiries and decisions in respect of its function of bringing into operation all the legal enactments relating to the agrarian reform. It has intervened directly, and by the intermediary of the Councils, in the attachment of the nobles' estates; and the decrees for the intensification of cultivation, to which reference will be made later, were carried out by the Institute. In short everything which relates to the reform is within the competence of this organisation.

The two main duties of the Provincial Councils are: to indicate in each communal area of their respective provinces, the lands set aside for the purposes of the reform, that is to say, to indicate the areas on which the new plots for assignment may be formed; and to draw up the census lists of the farm workers who may be settled on each communal area.

The agrarian reform has been applied, as a beginning, only to that class of provinces where it is most urgently needed, *i. e.*, to the provinces included in the regions of Andalusia and Estremadura and at Ciudad Real, Toledo, Albacete and Salamanca. The latest census taken before the enactment of the law of the agrarian reform, the census of December 1930, gave the following figures: for the communes and their population in the provinces mentioned: 1,957 communes with 7,249,484 inhabitants. Deducting 40 per cent. of this population, a very rough estimate of the proportion not living by agriculture, there remains a farming population of about 4,500,000 individuals, or, on the basis of the average size of the Spanish rural family, some 800,000 families. To settle this large number of farm workers on plots of their own is a difficult and costly undertaking which is being effected at last by the agrarian reform, through the intermediary of the Provincial Councils as delegates of the Institute in practice. Many years must elapse before the object can be finally attained; the Government, fully aware of the magnitude of the task and of its costliness, is arranging for a gradual accomplishment of the work, and has indicated the yearly quotas of settlement. Otherwise, if a rapid application of the reform were attempted, it would lose its effectiveness and would involve an expenditure which would react seriously on the national economy.

The statistics published by the Institute of Agrarian Reform in its Bulletin of December 1933 indicate the area of the lands liable to expropriation for the purposes of the reform in each commune in accordance with the reports issued by the respective Provincial Councils. These statistics refer to those provinces which have already been mentioned as standing most in need of the reform.

The following table shows these provinces, the number of communes in each and the areas designated as expropriable specifying in addition the type of cultivation carried on in each case.



On these areas, with their different types of crop, the plots will be gradually formed in view of the settlement of the farm workers who are in need of land. Some parcels may be occupied at once, others will require fundamental transformation before being parcelled. Such is the work carried out by the Councils, by delegation from the Institute of Agrarian Reform. Later the list of the farm workers is to be established and at no distant date, the application of the reform in these provinces which stand most in need of it will undoubtedly be satisfactorily accomplished.

Provinces	Number of communes in each province	Type of Cultivation					
		Grass land	Olives	Vines	Orchards	Pastures	Irrigated lands
<b>Andalusia.</b>							
Almería . . . . .	40	12,000	7,500	4,000	4,000	16,100	400
Malaga . . . . .	132	32,355	16,285	10,350	11,125	46,300	1,125
Grenada . . . . .	151	109,850	47,350	29,150	38,750	142,000	—
Jaen . . . . .	101	38,800	48,150	—	—	57,465	—
Cordoba . . . . .	75	82,750	47,900	23,350	—	56,900	—
Seville . . . . .	80	48,000	24,000	13,600	16,000	52,000	4,000
Cadiz . . . . .	42	16,800	8,400	11,925	4,400	23,550	2,140
<b>Extremadura</b>							
Caceres . . . . .	214	127,400	36,150	21,400	21,400	158,500	—
Badajoz . . . . .	157	53,920	26,400	15,000	15,000	108,700	—
<b>Other regions</b>							
Ciudad Real . . . . .	98	49,950	19,660	14,000	12,500	60,600	2,150
Toledo . . . . .	285	111,000	58,100	32,000	36,000	148,500	—
Albacete . . . . .	90	39,100	13,400	10,750	13,350	—	—
Salamanca . . . . .	285	128,250	57,000	30,500	28,000	142,500	3,700

*Intensification of Cultivation.* — On 1 November 1932 a decree was published on intensification of cultivation applicable in the first place to the province of Badajoz, by Ministerial ordinances this decree was later extended to the provinces of Caceres, Ciudad Real, Toledo, Salamanca, Seville, Cadiz and Jaen. It was intended to replace the law on the agrarian reform the effect of which was inevitably delayed in view of the large number of its provisions. Since an unduly hasty introduction of the law might have been prejudicial to the national economy and was hence considered inadvisable, it was essential to adopt other measures to combat the unemployment among farm workers which was assuming serious dimensions in some provinces, and especially in Andalusia and Extremadura. In fact, once the cultivation work of the main crops was over the large majority of the peasants remained perforce unemployed and, in like manner, much of the land remained untilled. One of two attitudes might be taken by the Government in view of this situation, it might decide, either to give increased attention to the application of the law on forced labour (1), or to

(1) The law on forced labour, enacted one year before that of the agrarian reform, lost all its importance when the latter came into force, in addition on account of its radical tendencies its effectiveness had never been great

anticipate the application of the agrarian reform. Both methods were taken into consideration. An increased application of the law on forced labour would not fully meet the economic problem and might create a dangerous situation in view of the radical tendencies of the law. On the other hand to anticipate the agrarian reform would to be rob it of its efficacy.

As the most effective means of meeting the anomalies of the situation, the decree on intensification of cultivation was enacted. This decree provides that in all the communes in which the unemployment crisis assumes a serious character, rural estates which by their position, type and state of their crops, may be considered suitable should be occupied either as a whole or in part, with a view to assisting workers by providing them with work over a definite period. The Institute of Agrarian Reform was instructed to indicate the lands to be so occupied and to draw up a plan of intensification of cultivation. The owner, tenant or cultivator of the estate so indicated, undertook to give work to farm workers, who were unemployed through no fault of their own, so far as the extent of the land allowed, on condition that such workers were domiciled in the commune in which the estate in question was situated. Such lands might also be farmed by associations or groups of unemployed workers, formed for the purpose of working the land. The State made some contribution to the farming by means of advances, to be repaid, guaranteed by the effect of the continued cultivation or by the standing crops.

As first results of the application of the decree in the province of Estremadura, all unemployed persons in the region were employed and all the land brought under cultivation, and such a period of peaceful labour followed as could not have been attained in any other way. Due account was taken of the two factors by which the social situation may be disturbed; capital and labour. Account was taken of labour in that it was assured its full development; capital received consideration in that it was not abandoned by the law which recognised the right of owners of occupied lands to intervene as regards the technical treatment given to their farms, while no such intervention could take place unless there was evidence of the efficacy and necessity of such intervention.

Moreover if the land to be occupied had been devoted to stock farming, provision was made for removing the industry to other areas where the same advantages in situation and maintenance would be ensured for the animals as on the area now required for a more intensive cultivation for the benefit of the human population. Thus all legitimate rights of ownership were safeguarded and all the reasonable aspirations of the workers themselves.

Before setting out the data available on the results of the decree on the intensification of cultivation, it should be noted that the main object of the legislator was to find a remedy for unemployment among the rural population, which, as stated, was of an exceptionally serious character in certain regions, and thus to further the purposes of the agrarian reform and to facilitate its application.

The last official statistics which are available on the number of workers placed on the land in virtue of the decree on the intensification of cultivation refer to 31 March 1933. The number of farm workers so placed at this date,

the number of farm estates on which intensification was carried out, the occupied area in each case, and the credits granted by the State for the expenses of occupancy and farming are shown as follows:

Provinces	Number of farms	Occupied area ha	Workers placed on land	Credits granted pesetas
Badajoz . . . . .	648	53,921	18,750	6,355,613
Caceres . . . . .	96	9,365	2,194	250,074
Ciudad Real . . . . .	52	4,357	1,862	542,830
Toledo . . . . .	101	5,068	1,585	626,034
Salamanca . . . . .	5	874	270	50,717
Seville . . . . .	47	6,614	1,040	695,607
Cadiz . . . . .	72	7,640	2,394	1,682,990
Jaen . . . . .	1	280	100	53,004
Totals . . .	1,022	88,119	28,195	10,256,869

There should be added to the number of farm workers those who received parcels of land in virtue of measures of intensification of cultivation taken by the Government authorities and not, as already described, by the Institute of Agrarian Reform. This additional number of 5,253 workers brings up to 33,448 individuals, with their families, the total of those who obtained land as the result of the decree on the intensification of cultivation.

Good results were undoubtedly obtained from this application of legal measures facilitating the temporary occupancy of rural lands for the purpose of intensification of cultivation, but on the other hand, so soon as this temporary occupancy came to an end the good results disappeared. Accordingly by a new law, dated 11 February 1934, it was prescribed that farm workers who had done work of any kind on the lands occupied in virtue of the decree on the intensification of cultivation would have the right to remain in occupancy of the holdings until the crop was gathered. In view of the fact that the cultivation is mainly cereal, the date fixed as suitable was 1 August 1934.

In all the cases of occupancy for the purpose of intensification of cultivation, the workers established on the land are expected to pay, as annual rent to the landowner who can show legal claim to the parcels cultivated by them, the return on the parcel as assessed by the cadastral survey of rural lands. The Institute of Agrarian Reform is jointly and severally liable with the occupant for this payment.

On 1 August 1934, the date fixed by law for the abandonment of the parcels the occupants withdrew, but shortly afterwards when the period of sowings of the cereal crop came round, the Government, with a view to giving continuity to the occupancy, introduced a new law of 21 December 1934 in virtue of which the parcels in question might be occupied for another year by those who had previously benefited by the occupancy. Such further occupancy was however made conditional on the workers having fulfilled all the provisions of the law on intensification of cultivation, and also on there being no evidence

to show that they already were in possession of other holdings from which they could obtain a livelihood.

In this way, although in merely temporary occupancy, those of the land workers who chiefly needed State assistance were provided with suitable areas for cultivation while waiting for the definitive application of the agrarian reform.

The province in which the decree on intensification of cultivation received the fullest application was that of Badajoz. It has already been noted from the figures previously given that the number of the land workers placed on the land in this province exceeded that of all the other provinces taken together in which such placing occurred. This is due to the type of cultivation on the farms of this province. In most cases cereals are the main crop and are sown alternately on the half or on one fourth of the area of the farmland, the remaining area being used for stock which graze on the stubble left from the crop of the previous year. As nearly all the peasants of this region possess farm implements and draught animals but no land, the experts appointed by the Provincial Council to find land for unemployed workers had merely to transport the live stock to pastureland zones and to place the workers on the fallow. In this way lands were intensively cultivated which under the previous system of farming lay idle for one or two years.

To summarise, the legislative measures relating to the occupancy of the land have at present a temporary character only; they represent an experiment which resolves the situation for the time being while waiting for the application of the reform which should give a permanent character to this temporary occupancy. All these legislative measures go to show that Spanish law which formerly ignored the humbler classes is now taking a more humane form whereby these will be protected from the abuses of ownership, or, in other words, that ownership will be made subordinate to the public interest.

Of all the legal documents that relate to the agrarian reform the one which most reflects this humanitarian spirit is the recent law on tenancy, and a brief summary of this measure and some comment on it will form the conclusion of this article.

This law is apparently unconnected with the agrarian reform but it is in reality closely related to it; it forms the charter which will in future regulate, in accordance with strictly democratic and Christian principles, all the new forms of holding which will be brought into existence on Spanish soil by the agrarian reform.

It is not intended here to set out the law in full. A statement will merely be given of the purposes for which it was framed and of the underlying revolutionary principles and profoundly humane spirit which have inspired the preparation of the measure.

There is no influence so decisive on the economic aspect of production or on the social aspect of the life of the farming class as that of the equitable and proper regulation of tenancy agreements. In view of the character of Spanish agriculture and within the limits of a system which respects the principle of ownership together with the limits imposed by the social interest, the Spanish Government was bound to respect the institution of tenancy and to ensure its preservation, in the conviction that this institution, under good guidance, would certainly

result in positive social benefit. The obsolete legal forms would naturally be discarded and would be replaced by prescriptions in full accordance with the requirements of modern agriculture.

In virtue of these principles the new law on tenancy passed by the Spanish Cortes and enacted on 15 March 1935 favours the rights of farm tenants as the recognition of their stability on the land and of the contribution they make to the development of agricultural production. This law follows the lead given by the basic law of the agrarian reform in fixing the rent within the limits of the practicable, in taking into account the improvements made by the tenant on the farm, in fixing the duration of the agreement, in establishing, in the event of sale of the farm, a right of redemption (*retracto*) in favour of the tenant, in making reasonable allowances in the event of failure to pay, and other provisions of minor importance.

The more far reaching purposes of the law are indicated in its tendency to render absenteeism impossible. It is enunciated that land is an instrument of production and not merely a convenient means of drawing an income, and it is added that capital and labour should be so applied to the land as to ensure a return under economic market conditions and that for this end it should be farmed directly. The law therefore encourages the return to the land, a necessity which actual facts are imposing on all nations. The tenant is given security of tenure which stimulates him to make improvements likely to increase production, thereby giving him guarantees against the greed of land-owners who are anxious merely to raise rents, and lastly offering him some chance of obtaining full possession of the lands he rents. To the owner who sees in the land nothing more than the means of drawing an income, the collection of that income in the form of rent is duly guaranteed within the reasonable limits indicated by the law. If he shows any real interest in the land, everything will be made easier for him, since that interest, which will indirectly contribute to his well-being, will at the same time have the effect of increasing the agricultural wealth of the country and the national economy in general.

The object of the law is thus to bring about gradually without disturbances which might endanger the national economic life, the ideal so long contemplated by so many generations of land workers, *viz.*, that the whole product of the soil should be his who tills it.

So as to gain an idea of the changes brought about by the passing of the new law in the system of rural tenancy in Spain, the conditions to which the main prescriptions must conform are here compared with those to which they were hitherto adjusted.

As regards duration of the agreement, up to the present no term was fixed and everything depended on the goodwill of the owner of the land, whereas now a minimum period of four years is fixed.

Up to the time of the enactment, just as there was no fixed duration of the tenancy agreement, there were no extensions of it; now however it can be extended indefinitely and at the desire of the tenant.

Formerly the rent was fixed at will by the landlord; now the sum to be paid is fixed freely as before but it may be revised by the magistrate of court of first

instance if the tenant considers it too high and thus the law protects the tenant against abuse of the landlord's right.

Farming improvements, under the former legislation, did not always fall on the landowner and in many cases the fiscal charges were met by the tenants; at present improvements and fiscal charges are undertaken by the owner, except the tax on the tenant's profits, which represents hardly a third of the fiscal charges.

Moreover before the publication of the new law, the tenant was not compensated for making improvements on the farm, now this is done in accordance with a fixed scale which is fair and equitable.

Formerly the sale of a farm brought the tenancy to an end if the owner so wished. Now even after the sale, the tenancy agreement remains in force, except in the event of the new purchaser desiring to cultivate the farm directly.

In regard to the case of sale of a farm the new law also introduces an innovation advantageous to the tenant: it concedes to him the so-called right of redemption (*retracto*), i. e., in the case of sale of a farm, if the bids are equal the preference is given to the settler who has up to the time farmed it as tenant.

All these advances made by the law on tenancy are of the greatest importance and if rightly interpreted the law should regulate the relations between the landowner and the tenant to the benefit of the farming profession.

E. MARTINEZ DE BUJANDA.

## AGRICULTURAL CO-OPERATION IN YUGOSLAVIA

(Concluded) \*

### III. — THE CO-OPERATIVE MOVEMENT SINCE THE UNIFICATION OF THE KINGDOM OF YUGOSLAVIA.

The Balkan wars and the Great War considerably disorganised the co-operative movement in all parts of what is now Yugoslavia and particularly in Serbia.

Owing to the absence of complete statistics and precise information it is not possible to reconstruct the co-operative movement even during the period 1920 to 1927. This period, however, may be considered as one of restoration and reconstitution of the co-operative movement.

A description will be given here in which an attempt will be made to give an approximate idea of this period, taking as a basis the fragmentary information available on a few co-operative Federations and Unions.

The "*General Federation of Serbian Agricultural Co-operative Societies*" may first receive mention. This is the largest co-operative organisation in Yugoslavia and statistical information in respect of it is available even during the years of disorganisation. In spite of all the difficulties encountered during the wars this Federation, which included 710 co-operative societies in 1911,

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\* The first part of this article appeared in the *Economic Bulletin* No 6, pp 219-226.

was able to show a membership of 1,468 Serbian co-operative societies in 1920 and of 2,021 at the end of 1922.

The establishment, however, of new Croatian and Slovene co-operative societies, and particularly the institution of Yugoslav agricultural co-operative credit societies by the Law of 12 June 1925, acted as a check on the progress of the Federation, and in 1926 the number of adhering co-operative societies had fallen to 1,958.

The "*Central Union of Croatian Co-operative Societies*", which in 1914 included 286 co-operative societies with a membership of 39,381, at the beginning of 1919 included 291 co-operative societies in Croatia and Slovenia and 64 Croatian co-operative societies in Bosnia and Herzegovina. The Croatian and Slovene co-operative societies developed rapidly during the period 1920 to 1927, but unfortunately precise and complete information is not available.

Following the period of reconstruction of the Yugoslav co-operative movement the first and most complete and detailed statistical information for the whole Kingdom was published in 1929 and referred to the date 31 December, 1927. A statistical table follows in which is illustrated the Yugoslav co-operative movement during the period 1930 to 1933 compared to the year 1927. The reader should note the fact that all information collected from various sources for preparation of this Table has been revised with the utmost care, but at the same time there may be some inaccuracies, chiefly due to the difficulty of obtaining official information which is exact and complete for the whole of Yugoslavia.

Of the 5,581 principal co-operative societies existing on 31 December, 1927, and grouped in 30 Central Unions, 65.9 per cent. were *co-operative credit societies* (3,676). These co-operative credit societies are almost all of the *Raiffeisen* type and for the most part unlimited liability societies.

It must also be noted that a third of these co-operative societies were founded by virtue of the Law "on agricultural co-operative credit" of 12 June 1925.

At the same period the second place was taken by the *co-operative societies for distribution and supply* with 976 societies, or 17 per cent. of the total number of principal co-operative societies. Very much further down the scale are found the other types of co-operative societies, among which the most important are the "*farming communities*" (323), that is, 6 per cent. and the *co-operative dairies and cheese making societies* (105), that is, 2 per cent.

Of co-operative societies of other types the number in no case exceeds 1 per cent of the total, with the exception of the artisans and workmen's co-operative societies.

This distribution of Yugoslav co-operative societies, of which nearly 85 per cent. belong to two categories, *i. e.*, co-operative credit and co-operative societies for distribution and supply, and 15 per cent. is constituted by different types of co-operative societies among which co-operative societies for agricultural production are poorly represented, clearly indicates the form taken by the economic structure of the country. It must at the same time be remembered that of the 579,000 members of co-operative societies existing on 31 December, 1927, almost 90 per cent. were farmers.

TABLE I. — *Co-operative Societies in Yugoslavia 1927-33.*

	31 XII 1927		31 XII 1930		31 XII 1931		31 XII 1932		31 XII 1933	
	Number	%	Number	%	Number	%	Number	%	Number	%
Co-operative credit societies . . . . .	3,676	65.9	4,418	62.4	4,407	59.5	4,552	57.9	4,624	56.2
including those formed under the law on agricultural credit . . . . .	(1,200)	—	(1,350)	—	(1,186)	—	(1,493)	—	(1,500)	—
Co-operative societies for distribution and supply . . . . .	976	17.1	1,172	16.6	1,211	16.1	1,363	17.3	1,566	19.0
Stock-farming and poultry-keeping societies	58	1.0	107	2.8	280	3.8	315	4.0	368	4.5
Co-operative dairies and cheese-making societies . . . . .	105	2.0	126	1.8	181	2.4	159	2.0	170	2.1
Artisans and workmen's co-operative societies . . . . .	600	11.1	92	1.2	93	1.2	122	1.5	116	1.4
Building and housing co-operative societies	70	1.3	81	1.0	89	1.2	91	1.2	88	1.1
Co-operative societies for viticulture and wine-making . . . . .	28	0.5	62	0.9	81	1.1	87	1.1	90	1.1
Co-operative health societies . . . . .	30	0.5	61	0.9	83	1.1	84	1.1	88	1.1
Co-operative societies for purchase and utilisation of machines . . . . .	40	0.6	59	0.8	60	0.8	63	0.8	65	0.8
Central co-operative societies for supply of electric power . . . . .	44	0.7	47	0.7	51	0.6	52	0.6	55	0.7
Co-operative fishing and sponge gathering societies . . . . .	36	0.6	38	0.5	42	0.6	52	0.6	58	0.7
Co-operative grain societies . . . . .	—	—	28	0.4	111	1.5	117	1.5	124	1.5
Co-operative oil factories . . . . .	15	0.3	19	0.2	22	0.3	22	0.3	27	0.3
Other societies for agricultural production	15	0.3	19	0.2	68	0.9	173	2.2	157	1.9
Miscellaneous co-operative societies . . . . .	105	2.0	126	1.8	116	1.5	118	1.5	161	1.9
Co-operative farming communities . . . . .	323	6.0	503	7.0	516	7.1	449	5.7	470	5.7
<i>Total of primary societies . . . . .</i>	<i>5,581</i>	<i>100.0</i>	<i>7,048</i>	<i>100.0</i>	<i>7,434</i>	<i>100.0</i>	<i>7,819</i>	<i>100.0</i>	<i>8,227</i>	<i>100.0</i>
Co-operative Unions and Central Societies	30	—	43	—	53	—	50	—	53	—
GENERAL TOTAL OF CO-OPERATIVE ORGANISATIONS . . . . .	<b>5,611</b>	—	<b>7,096</b>	—	<b>7,487</b>	—	<b>7,869</b>	—	<b>8,280</b>	—
Membership figures of the co-operative societies . . . . .	579,000	—	834,000	—	851,000	—	894,000	—	1,008,000	—



The preponderance of so-called *co-operative credit societies*, the majority being co-operative societies of the *Raiffeisen* type, that is, they supplied farmers with machinery and other agricultural implements for cash or on credit, shows the low earning capacity and consequently the poverty of the Yugoslav rural masses. Only the Slovene co-operative credit societies are solely credit societies *i. e.*, on the principle of the *Schulze-Delitzsch* co-operative societies.

The activity of the *co-operative societies for distribution and supply* is dual. In unfavourable seasons the greatest development is shown in the supply to farmers, for cash at cost price or on credit at a low rate of interest, of machinery, implements, selected seeds, artificial manures, etc. In the years when prices are high these societies tend to act as a check on the rise of prices, and supply farmers with necessities, such as food, clothing, etc., at a low price. In fact, the most marked development of these co-operative societies took place during the period of high prices, that is, from 1925 to 1929, while during the last crisis and the fall in prices their importance diminished considerably.

The general development of agriculture during the first eight years (1920-1928), following the establishment of the new Kingdom, was not very favorable, although, with the aid of the Government and the co-operative societies, the farmers have been able to meet the situation both as regards prices and the marketing of their products. The crisis, which began in 1929, has also encouraged the rural masses to organise, not only for the purpose of obtaining credits and requisites at a low price, but also to obtain better prices and markets for their agricultural products.

For this reason the *co-operative societies for production and sale* have developed more rapidly since 1929.

For example, the number of stock-farming and poultry-keeping societies has increased considerably during the last few years. The stock-breeding societies however have not developed as might have been expected in view of the abundance of good natural grass land and the favorable conditions for sales and prices of live stock and particularly for live stock derivatives. The stock-farming and poultry-keeping societies are chiefly interested in breeding, crossing of breeds, and, less often, with importation of selected breeds or regulation of markets, etc. A fairly large number of co-operative dairies do not undertake butter or cheese making but sell the milk in liquid form. Other societies for agricultural production and sale, such as the co-operative vine-growing, co-operative fishing societies and co-operative oil factories, were not greatly developed up to the year 1929. This delay in the development of the co-operative movement for the production and sale of agricultural products, apart from reasons already indicated, may be attributed to the want of financial means, specialised technical staff and to the distrustful attitude of the farmers. Among other co-operative societies of various types, the *co-operative health societies* might with advantage be further developed, their number being, at the end of 1927, only 30. These co-operative societies, in direct collaboration with the central health institutions, have rendered great service to the rural masses. In addition to encouraging the production of fruits, vegetables, honey, wax, etc., on more hygienic

lines, these co-operative societies are also engaged in the treatment of diseases of farmers, contagious diseases of stock and plant diseases.

A number of doctors give their services to farmers and a large quantity of medicaments is distributed each year for cash or on credit at cost price.

Among the *central co-operative societies* for supply of electric power only a few produce electric current themselves, the majority supply their members with electric power from the nearest distributing stations, in this manner acting as consumers' co-operative societies.

The introduction of the new commercial policy for cereals, and especially for wheat, since 1930, necessitated the constitution of new *co-operative grain societies* which buy grain from farmers at a fixed price. Towards the end of 1930, there were established 28 co-operative grain societies and by 1931 the number had risen to 114 thus taking the sixth place in that year among the total of co-operative societies. The slight diminution in the development of these societies during 1932 is due to the very low production of that year.

As to other types of co-operative societies, the rapid increase in the number of *co-operative societies for agricultural production* deserves special mention. This increase is chiefly due to the foundation of co-operative societies for new branches of agricultural production. In fact, during the last few years, new co-operative societies have been established for the cultivation of *sugar-beet, tobacco, rosemary, fruits, hemp, hops, opium*, also for *bee-keeping, market-gardening, forestry*, etc.

This rapid development in the number of co-operative societies for agricultural production shows a new orientation in the Yugoslav co-operative movement as, through these societies, the rural masses, who had been severely affected by the last crisis, are endeavouring to organise the production and marketing of their products on a co-operative basis.

#### IV. — PRESENT SITUATION AND ACTIVITY OF THE YUGOSLAV CO-OPERATIVE SOCIETIES.

After having reviewed the internal structure of the Yugoslav co-operative movement, mention must now be made of their numerical development and activity during the last few years.

It must be noted that more complete and detailed information is available for the co-operative societies grouped in Unions according to regions than for those forming Unions constituted according to the kind of activity of the societies. In view of the large number (22) of these regional Unions, an examination of a few of the principal ones will suffice.

All statistical information available relating to the activity of these Unions is official and is taken from the Report of the General Federation of Co-operative Unions of Yugoslavia. All figures refer to the date 31 December 1932. Of the total number of 6,376 co-operative societies, excluding the 1,493 special agricultural co-operative credit societies, existing in the country on 31 December, 1932, only 92 were not federated. It will, therefore, be seen that the co-operative movement in Yugoslavia is almost entirely centralised.

The most important Union in Yugoslavia, the *General Union of Serbian Agricultural Co-operative Societies*, was founded at Belgrade in 1895, and on 31 De-

cember 1932 grouped 2,501 co-operative societies, 1,136 with unlimited liability and 1,373 with limited liability. According to the rules, the total subscription for a single share is fixed at 500 dinars and the liability of members towards the Unions at 10 shares. Since 17,570 shares had been subscribed on 31 December 1932, the total guarantees available to the Union amounted to 87,800,000 dinars. The activities of the 2,501 co-operative societies federates in this Union are as follows: 1,140, credit; 1,018, distribution and supply; 54, dairying and cheese-making; 96, grain; 60, cattle-breeding; 35 viticulture and œnology; 26, sugar-beet; 17, fruits; 16, poultry-keeping; 3, fishing; 3, artisans; 4, pig-raising; 2, sheep farming; 2, bee-keeping; 1, opium; 1, hemp; 1, rice; 1, pasture; 6, utilisation of water; 10, various.

The 2,501 Serbian agricultural co-operative societies, or more than 40 per cent. of the total number of Yugoslav co-operative societies, are centralised in 7 district Central Unions, and one Audit Union. The total number of members at this time was 131,910, that is, about 12 per cent. of the total number of members of Yugoslav co-operative societies.

The total turn-over of the General Union of Serbian agricultural co-operative societies had, during the year 1932, reached the figure of 3,000,000,000 of dinars as against 1,800,000,000 of dinars in 1931.

In spite of the rapid increase in the total turn-over, the receipts and expenditure showed a slight diminution in comparison with the preceding year. Receipts amounted to 241,800,000 dinars and expenditure to 242,500,000 dinars. The Union had sold various kinds of merchandise during the year 1932, amounting to the value of 106,600,000 dinars as against 180,000,000 dinars in 1931. The savings deposits also showed a decided reduction, while withdrawal of savings had increased. In addition, the repayment of loans granted showed a marked diminution following the Law for the relief of debtor farmers. Consequently the loans granted were reduced to 42,400,000 dinars as compared with 158,500,000 dinars granted in 1931.

In 1928, the *Union of Serbian Agricultural Co-operative Societies* was founded at Novi Sad and in 1932 grouped 361 co-operative societies with 31,592 members. This Union was formed by the former Union of Serbian agricultural co-operative societies, founded at Zagreb in 1898, amalgamated with the General Union of Serbian agricultural co-operative societies at Belgrade in 1922 from which it was again detached in 1928. The majority of the societies grouped in this Union are co-operative credit societies (306), followed by the co-operative societies for distribution and supply (20), co-operative cattle-breeding societies (13), dairying and cheese-making (6), vine-growing and wine-making (5), poultry-keeping (3), artisans (2), and the remainder consisting of one society for each of the following: grain, market-gardening, production of vine-stocks, pig-breeding, fishing. In 1932 the turn-over amounted to 624,800,000 dinars as against 649,500,000 in 1931. The sales during the year 1932 were almost nil while in 1931 they represented 62,900,000 dinars. Loans granted in 1932 amounted to 28,200,000 dinars as compared with 15,500,000 dinars in 1931.

The *Union of Slovene Co-operative Societies* groups a smaller number of co-operative societies, but may be classified in the secondary grade of import-

ance. It was founded in 1899 at Ljubljana and is now known as the *Co-operative Union*. Up to the end of 1932, it included 663 co-operative societies with 151,700 members. It will be seen that, though it groups a smaller number of co-operative societies compared to the Serbian Union, the Slovene Union has a larger number of individual members. In 1932, half the societies in this Union were co-operative credit societies (336); there were also 76 co-operative societies for distribution and supply, 54 co-operative stock-farming societies, 37 dairying and cheese-making societies, 37 co-operative societies for utilisation of machines, 30 co-operative housing societies, 22 central electric societies, 19 co-operative artisans' societies, 10 co-operative vine-growers societies and others.

The movement of capital of this Union is also more marked than is the case with other Unions, and is exceeded only by that of the Serbian Union and that of the Union of State officials' consumers' societies. In fact, although there was, as compared with the figure of 1,219,000,000 dinars in 1931, a considerable reduction in 1932, the movement of capital of the Co-operative Union in that year was still 592,300,000 dinars. The business transactions also showed a decided reduction in 1932, the receipts being 23,200,000 dinars as compared with 88,300,000 in 1931, and expenditure being 23,200,000 dinars as against 87,700,000. Following the reduction in savings deposits from 130,000,000 to 81,900,000 and in repayment of loans from 54,400,000 to 25,200,000 the loans granted fell from 56,200,000 dinars in 1931 to 16,700,000 in 1932.

The other Slovene co-operative societies are centralised in the *Union of Slovene Co-operative Societies* founded in 1927 at Ljubljana. The membership is smaller than that of the earlier Union, although at the end of 1932 including 338 co-operative societies and Central Unions with a membership of 80,856. This Union, like the first, is composed of different types of co-operative societies, the largest number being that of the co-operative credit societies (149). Next come 26 societies for dairying and cheese-making, 24 central electric societies, 22 co-operative societies for distribution and supply, 21 co-operative housing societies, 19 stock-farming societies, 16 for the utilisation of machines, 12 for the utilisation of water, and 13 artisans' societies. Movement of capital amounted to 112,800,000 dinars in 1932 as against 232,400,000 in 1931. The sales of this Union are very limited and in 1932 amounted to 35,000 dinars and 78,000 in 1931. During the year 1932 loans were granted to the sum of 22,200,000 dinars as against 17,300,000 dinars repaid.

The Croatian co-operative societies are grouped in three Unions, the principal being the *Central Union of Croatian Agricultural Co-operative Societies*, founded at Zagreb in 1910. At the end of 1932 this Union had 4,907 subscribed shares at 100 dinars each with a "multiple" of liability of members towards the Union fixed at 10 shares. The total of guarantees in 1932 was 4,900,000 dinars. In 1932, of the 336 co-operative societies, including 1 central co-operative society, 302 were unlimited liability societies and 34 had limited liability. Almost all the societies were co-operative credit societies (313). At the end of 1932 the Union had a membership of 47,108 persons. The other types of co-operative societies were as follows: 6 co-operative societies for distribution and supply, 5 for live-stock insurance, 4 for vine-growing, 3 artisans' societies, 2 for dairying, 2 for

forestry and 1 for bee-keeping. Like the other Unions, this Croatian Union suffered a reduction in the total turn-over during the year 1932 in comparison to 1931, the turn-over having fallen from 450,000,000 dinars in 1931 to 316,700,000 in 1932. The sales, however, increased from 7,800,000 dinars in 1931 to 11,100,000 in 1932. The savings deposits in 1931 also showed a considerable increase, amounting to 62,100,000 dinars as against only 2,600,000 in 1931, and the withdrawal of deposits amounted to 40,100,000 dinars as compared to 500,000 in 1931. This financial situation allowed the Union to maintain the amount of loans granted at about the same level as in 1931, that is, 12.7 as against 12.1 million dinars.

While dealing mainly with agricultural credit the Union effected purchases of cereals in 1932 for a sum of 6,800,000 dinars as compared with 5,900,000 in 1931. It has also been largely engaged in the export of live stock, and through the intermediary of the Union 1,044 head of cattle were sold in 1932 for a total value of 1,400,000 dinars, there being no sales in 1931, while hay was sold to the value of 1,800,000 dinars as compared with 300,000 dinars worth in 1931.

The second Croatian Union, the *Co-operative Union*, founded at Zagreb in 1920, included 156 co-operative societies in 1932, (including 2 central co-operative societies), of which 73 were unlimited liability and 83 limited liability societies. In 1932 the membership was 32,783 persons. The majority of societies in this Union are co-operative credit societies (102). The number of co-operative societies for distribution and supply in this Union is much larger than in the preceding Croatian Union and in 1932 amounted to 16. Among other co-operative societies grouped in this Union, are 8 co-operative grain societies, 6 dairying and cheese-making societies, 3 vine-growing and wine-making societies, 3 artisans' societies and 2 publishers' and booksellers' societies. In addition, there is one society for each of the following: forestry, sheep-breeding horses, poultry-keeping, fishing, irrigation, life insurance, and 5 various.

On 31 December 1932, the total turn-over of this Union had fallen to 89,300,000 dinars as against 141,400,000 in 1931. Sales in 1932 amounted to 2,700,000 dinars as against 3,300,000 in 1931. Savings deposits had greatly diminished and had fallen from 9,000,000 dinars in 1931 to 1,000,000 in 1932. Thanks, however, to a fuller repayment of loans than in 1931 (8,800,000 dinars as against 5,900,000) granting of loans 1932 remained nearly as in 1931 (7,300,000 millions as against 8,500,000).

The third Croatian union, after going into liquidation in 1924, was re-established at Zagreb in 1928 as a central co-operative society under the name of *Croatian Agricultural Society*. The amount of subscribed shares of this Union is much higher than that of the two preceding Croatian Unions; in fact, it is fixed at 500 dinars and at a multiple of 20 for the liability of members towards the Union.

With the 3,482 shares subscribed at the end of 1932, the total guarantees had reached the figure of 34,800,000 dinars. In 1932 this Society included 126 co-operative societies, all with limited liability, with a total membership of 13,145 persons. There are no co-operative credit societies included in this Soc-

ity. Of the 126 co-operative societies, including two central co-operative societies, the majority belong to the category of co-operative societies for distribution and supply (62) and the remainder to that of co-operative societies for agricultural production, there being 30 grassland cultivation societies and 18 co-operative stock farming societies. The other societies are as follows: 6 for dairying, and cheese-making, 3 co-operative grain societies, 6 societies for vine-growing poultry-keeping, slaughtering, onion-growing, grain, etc.

In 1932 the movement of capital amounted to 14,900,000 dinars as compared with 12,900,000 in 1931. From 2,700,000 dinars in 1931, sales dropped to 1,300,000 in 1932.

On 31 December 1932, the total turnover of the 22 Unions was 7,447,000,000 dinars as against 7,450,000,000 in 1931. Sales made by all the Unions taken together fell from 309,500,000 dinars in 1931 to 168,800,000 dinars in 1932. The amount of loans granted also diminished from 439,100,000 dinars in 1931 to 251,300,000 in 1932, this being chiefly due to the great reduction in the repayments of loans granted and the reduction in savings deposits.

In addition to these 22 Unions which centralise the various types of co-operative societies, generally according to regions and districts rather than according to the character of their activity, there are a fairly large number of Central Co-operative Societies. At the end of 1932 there were 22 of these Societies the majority being co-operative societies for agricultural production with headquarters in the areas of production.

The Central Co-operative Societies are grouped in six towns as shown on the accompanying table—

	Head Office
1. — Central Co-operative Society for agricultural purchasing . . .	Belgrade
2. — <i>Samopomoc</i> Central Co-operative Dairy Society . . . . .	"
3. — Co-operative Agricultural Union . . . . .	"
4. — Union of co-operative societies for selective pig-breeding . .	"
5. — Union of co-operative societies for grassland cultivation . . .	"
6. — Central Co-operative Live Stock Insurance Society . . . . .	"
7. — Central Trading Society of agricultural co-operative societies.	Novi Sad
8. — <i>Agraria</i> Central Co-operative Agricultural Society . . . . .	"
9. — Central Pig-Breeding Co-operative Society . . . . .	"
10. — Union of German stock-breeding co-operative societies . . .	"
11. — <i>Avis</i> Central Co-operative Poultry keeping Society . . . . .	"
12. — Central Co-operative Society of agricultural co-operative health societies. . . . .	"
13. — Accounting Office of agricultural co-operative societies . . .	Split
14. — Union of Co-operative Societies . . . . .	"
15. — <i>Pharos</i> Central Society of the co-operative societies for cultivation of rosemary. . . . .	"
16. — Central Society of co-operative fishing societies . . . . .	"
17. — Central Organisation of co-operative oil-factories . . . . .	"
18. — Central Society of co-operative vine-growers' societies . . . .	"
19. — Agricultural Union . . . . .	Lubljana
20. — Central Dairies . . . . .	"
21. — <i>Ekonom</i> , Central Agricultural Co-operative Society . . . . .	"
22. — Union of co-operative societies for selective pig-breeding . .	"

The total turn-over of these 22 Central Co-operative Societies has been considerable in spite of a slight diminution in 1932. In 1932 it fell to 1,464,000,000 dinars as compared to 1,731,000,000 in 1931. Sales in 1932 amounted to dinars 172,300,000 as against 180,400,000 in 1931.

#### V. — CONCLUSION.

The Yugoslav co-operative movement has made great progress during the last 5 years in spite of the absence of uniform legislation for all Yugoslav co-operative societies throughout the country, the inadequacy of financial means and of specialised technical staff, the existence of a too pronounced regional spirit and finally, the confusion resulting from the simultaneous membership of the co-operative societies of various Unions and Central Societies.

The last economic crisis has stimulated the foundation of new co-operative societies, with the help of which the farmers have tried to combat, or at least reduce the effects of, the crisis.

On the other hand, the Government, in some anxiety from the development of the crisis, has favoured, and in some cases even imposed, the establishment of new co-operative societies, *viz.*, the agricultural co-operative credit societies established by the Law of 12 June, 1925; the co-operative grain societies founded in connection with the institution of the Privileged Society for the purchase of cereals, etc. Naturally, as stated in Part I, chapter II, not all the legislative measures have had a favorable influence on the development of the Yugoslav co-operative movement. For example, the Law of December 1932, for the relief of debtor farmers granted considerable facilities to these farmers, but at the same time, seriously affected the interests of numerous co-operative societies, especially co-operative credit societies. These adverse results were, however, immediately negated by a special Decree of 23 November, 1933, on the protection of co-operative credit societies and their Unions.

As this article was about to go to press statistical information was received on the situation of the Yugoslav co-operative movement on 31 December, 1933.

An examination of these figures, which have been added to the Table on page 265, will show that in 1933 the Yugoslav co-operative movement had made another step forward.

The annual increase of the total number of co-operative societies in 1933 was the same as in the preceding years, but the increase in the number of members had doubled. It is interesting to note the development in the new tendency to extend the co-operative societies for agricultural production. In fact, while on 31 December 1927, the co-operative credit societies, together with the co-operative societies for distribution and supply, represented about 85 per cent. of the total number of co-operative societies, at the end of 1933 their number was only 75 per cent. in spite of the establishment of 1,538 new societies during the last six years.

On the other hand, the number of other co-operative societies, composed chiefly of co-operative societies for agricultural production, has risen, during the same period, from 15 to 25 per cent. of the general total.

The most marked progress has been made by the co-operative stock farming societies and poultry-keeping societies, co-operative grain societies, co-operative societies for dairying, cheese-making and wine-making, co-operative oil factories and co-operative societies for the production of rosemary, etc.

The total turn-over of 22 Unions of co-operative societies, united in the General Federation, which includes over 90 per cent. of all the co-operative societies, reached, on 31 December 1933, the sum of 6,660,000,000 dinars as against 7,447,000,000 on 31 December 1932. Sales in 1933 represented a value of 189,700,000 dinars as compared with 168,800,000 in 1932. Loans granted have, on the other hand, increased up to 416,100,000 dinars, that is, the grants have almost reached the total of 1931, namely, 439,100,000 dinars, as compared with 251,300,000 granted in 1932. Savings deposits amounted to 311,000,000 dinars.

G. SEVERINE.

## HAIL INSURANCE IN GERMANY (*Concluded*) (1).

### II. — PUBLIC INSURANCE.

There is a great wealth of material relating to the history of public hail insurance in Germany.

Before the foundation in 1844 of the Bavarian Institute of Public Hail Insurance, State institutions were set up in Lippe-Detmold, Württemberg and in Hesse. These attempts at organising State hail insurance failed.

Public insurance in Lippe was organised on the basis of the system of initial premiums and supplementary payments, these latter being limited. In the event of the initial premiums and supplementary payments not being sufficient, the compensation payments were proportionately reduced. In addition the *Landesrentei* paid an annual supplementary contribution. The competition, however, of private societies with their system of full indemnification of losses resulted in 1883 in the cessation of the activities of the State institution, following on a gradual diminution of business which in fact never attained a large figure.

At Württemberg and Hesse premiums were classified in accordance with the risks, while at Lippe the starting point was a uniform contribution for every 100 thalers of insured risks. Classification of premiums was not however fully adopted in the two countries first mentioned. Compensation payments were reduced in the case of insufficient receipts; at Württemberg payment was made in full on one occasion only while in the year before it was possible to give compensation for 10 per cent. only of the losses, and in course of the years

(1) *Erratum*: In Part I of this article appearing in the June number on p. 228, line 17, for 1912 read 1812.



when operations had been most numerous (1845-1847) compensation payments had varied between 25 and 34 per cent. of the losses incurred. The premiums were undoubtedly not proportional to the insured risks, for at Württemberg, for example they amounted on an average to about one per cent. of these risks. As regards State subventions a contribution was fixed corresponding to the annual reductions of the land tax. The Württemberg Institute came to an end in 1862 and the Hesse Institute in 1864 (1).

In 1884 the Public Hail Insurance Institute was founded in Bavaria. This Institute is still in existence, and on account of the interest attaching to it the subject commands some further attention here. This organisation is in fact often quoted as a typical example of the organisation of public insurance, a problem which continues to take a prominent place in the discussions of circles interested.

It should be noted that before the Hail Insurance Institute of Bavaria was set up by the coming into force of the law of 13 February 1884, there were in existence the following institutions operating hail insurance in this State: the *Hagelassekuranzverein für den Isarkreis* which was established on the basis of the law of 28 December 1831 and later transformed, with extension of its field of operations, into *Hagelversicherungsverein für das Königreich Bayern*; four mutual insurance societies: the *Allgemeine deutsche Hagelversicherungsgesellschaft*, the *Borussia*, the *Gesellschaft zur gegenseitigen Hagelschadenvergütung*, the *Norddeutsche*; four joint stock companies: the *Vaterländische*, the *Magdeburger*, the *Union* and the *Kölnische*. The number of farmers insured by these societies before 1884 was 12,600; in other words, 2.5 per cent. out of the 600,000 farms in Bavaria were insured. The total sum insured amounted to about 26,000,000 marks.

During the years 1861 to 1874 the advantages had been constantly urged both in the Bavarian Parliament and in farming circles, of establishing a State Hail Insurance institution; it was however only on 1 March 1884 in virtue of the law of 13 February that a public institution was set up affiliated with the National Fire Insurance Institute (2).

The Public Hail Insurance Institute was organised as follows under the law of 13 February 1884.

This institution, founded on the principle of mutual insurance, received the character of a public establishment with all the privileges assigned to benevolent institutions. Members were admitted at their own request and retained membership so long as they had not notified in accordance with certain recognised forms their intention of resigning. The insurance year began on 1 March. The premium was payable each year from that date; if the insurance had been taken out in the name of several persons, these persons were jointly and severally liable

(1) Vortrag gehalten in Prag am 3 April 1930 von W. Rohrbeck über die öffentliche Bewirtschaftung der landwirtschaftlichen Versicherung in der Welt etc. Verlag: Verband der wechselseitigen deutschen Versicherungs-Unternehmungen in der Tschechoslowakei. p. 2 et 3.

(2) Landwirtschaftliches Jahrbuch für Bayern 1931. Munich p. 574.

Denkschrift des Staatsministeriums des Innern über die Neuordnung der Hagelversicherung in Bayern p. 5.

for the payment of the premium. Requests for admission and resignations were addressed to the municipal authority which was responsible for transmitting them to the authority in charge of the administration. On the occurrence of any loss or damage, the insured person must within two days, inform the municipal authority which had to notify the authority in charge of the Administration within 24 hours. If a valuation was required, this authority appointed an expert valuer; the presence of the insured person was not compulsory. If the insured person was not satisfied with the estimate of the valuer, it was open to him to claim within a week a second valuation which would be definitive. The right to compensation might not be ceded or pledged to a third party. Any person convicted of deception or attempt to deceive, to the prejudice of the Institute, lost his claim to the compensation. The State granted to the Institute a capital of 1,000,000 marks, and assigned to it also an annual payment of 40,000 marks. A reserve fund was to be constituted by means of (a) interest on the capital, (b) the interest on the reserve fund, (c) the membership entrance fees, (d) compensation payments not claimed within the specified periods, (e) the balance of each financial year after the settlement of the compensation claims and disbursements for the administrative expenses.

The administration of the Institute was in the hands of the Royal Chamber of Fire Insurances, Section of hail insurance (1).

The law of 13 February 1884 established the system of fixed premiums with no undertaking as to additional rates but with the possibility of reduction of compensation payments. This reduction had naturally to be effected in the years when the funds at the disposal of the Institute were not sufficient for full compensation of the losses. Such right of reduction was limited. The reserve fund had to be utilised in each year up to the maximum limit of one fourth of its total amount, the object being to avoid reductions exceeding 80 per cent. of the compensation payments due.

This law has been amended several times. Attention will be confined here almost exclusively to the amendments affecting the system of premiums and of compensation payments, which are of special interest.

During the period 1918 it proved possible to pay the following percentages on the compensation payments as fixed in accordance with the general conditions of insurance: *viz.*, 100 per cent. eighteen times, 97 per cent. once, 90 per cent. once, 85 per cent. twice, 80 per cent. nine times, 76 per cent. twice, 67 per cent. once, and 57 per cent. once.

The amount of the average premium was fixed each year in such a way as to make it possible, with the addition of one fourth of the existing reserve fund of the interest on that fund, and with the State contribution, to pay at least 80 per cent. of the claims on losses incurred during the year.

In the case of especially disastrous years when the losses exceed the average this procedure was not sufficient; on the whole however it has been maintained.

(1) *Annuaire de législation étrangère* publiée par la société de législation comparée Paris 1884, p. 214.

It was noted that with this system a considerable increase took place in the membership of the Institute: from a total of about 7,000 members in the course of 1884 with sums insured up to about 11,000,000 marks, the membership became 177,000 members in 1918 with sums insured up to about 393,000,000 marks. Even in the course of the years 1900, 1903 and 1908 in which very severe hail storms were experienced (the losses amounting to 2.67, 3.05 and 3.28 per cent. and compensation being possible only up to 67, 57 and 76 per cent.), confidence in the Institute was unaltered as is shown by the increase in the membership in the course of the subsequent years.

The fixed premiums were established taking into account the local risk according to the geographical position of the different communes, and the specific risk varying according to the different degrees in which crop products are affected by hail. In consequence of the diversity in the local risk, the localities were divided into classes. At the time of the setting up of the Institute, there were 15 such classes, in 1911 the number had risen to 25, later again reduced to 15. Crop products were divided into nine classes according to the degrees to which they suffer damage in the event of hail storms. This division remained in force up to 1919; in the course of that year the number of classes was reduced to six and in 1920 to four.

The system of fixed premiums with possibility of reduction of compensation payments was abandoned in 1917 in so far as, by making an additional payment of 10 per cent. on the basic premium with an undertaking to make further payments without limitation as to amount, the farmer was entitled to receive in all cases the full compensation for losses incurred.

From 1918 to 1927 the insured persons have had the opportunity, either as in the past on the basis of fixed premiums with reductions if necessary of compensation payments, or by the system of basic premiums with an undertaking to make additional payments without limitation of amount with corresponding claim to full compensation of losses.

In 1918, 1919 and 1920, the additional payments amounted to 10 per cent. of the premiums; in 1921 to 20 per cent.; in 1922, to 145 per cent.; in 1923 to 10 per cent.; in 1924, to 15 per cent.; in 1925 to 45 per cent.; in 1926, to 130 per cent.; in 1927 to 160; in 1928, to 33 per cent. In the course of the years subsequent to 1928, the proportion of members who had undertaken to make additional payments was 99.5 per cent. When however in 1926 and 1927 in consequence of the heavy damage the burden of the additional payments rose to 130 and 160 per cent., 24,939 members out of 99,500 in 1927, and 15,174 out of 84,100 in 1928 requested to be freed from the undertaking to make additional payments.

In conformity with its character as a benevolent institution (*Wohlfahrtsanstalt*), the Institute, in view of its ever increasing membership and increase in reserves, has granted progressive measures of relief to members, as for example, reduction of basic premiums, abandonment of the principle of non-compensation for losses amounting to less than 10 per cent. of the insured sum, and of that of limitation of payment on surplus products, etc. When however in consequence of the inflation, the reserve disappeared, the Institute was obliged to impose in 1924

an additional payment of 15 per cent. of the basic premium, in 1925 one of 45 per cent., while in 1926 and 1927 additional payments of 130 and 160 per cent. were imposed. Withdrawal of members in consequence took place on a larger scale, 25,000 having already resigned membership in 1923 in consequence of the Institute's having paid compensation claims in depreciated paper money in 1922. In 1924 the membership fell by about 15,000, in 1925 by 7,000, in 1926 by 10,000, in 1927 by 26,000 and in 1928 by 28,000, so that only the heaviest risks remained insured by the Institute.

The smaller risks were not insured or were covered by private societies, which precisely at this moment became keener competitors and not being handicapped by any obligation to accept all and every proposal for insurance, could limit themselves to seeking and accepting the most favourable risks.

The very unfavourable results from 1924 to 1927 compelled the Government to submit to the *Landstag* in February 1928 a report showing the position of the Institute together with recommendations as to the best means for improving the situation thus revealed. These recommendations proposed an arrangement making it possible to limit the additional payments undertaken by members to a certain figure, and to obtain any further sums required through loans made to the Institute by a third party to whom such loans were to be repaid in favourable years, and for which the State was to assume liability. It was suggested that the limit of the additional contributions should be fixed at a third of the basic premium, and this limitation was introduced by a law dated 12 April 1928.

At the same time the Council of the Administration of the Institute was authorised to borrow whenever the initial premiums and additional payments were not sufficient to meet the indemnity claims. While in 1928 the insured persons were still able to choose between the earlier system and the new one, from 1929 onwards the insurance operations were conditioned by the fact that additional payments were limited to one third of the initial premium. As the result of the coming into force of this law of April 1928, it became necessary during that year to arrange to borrow 3,500,000 Rm from the State Fire Insurance Institute, and during 1929 a further amount of about 12,000,000 Rm. (1).

In consequence, the system of the law of 1928 was not maintained and after long discussions there was re-introduced by a law dated 12 April 1930 the power to reduce compensation payments without any limit being fixed to such reduction together with a limited obligation in respect of additional payments. It is laid down by art. 13 of this law that the compensation payments must be made in the full proportion established by the general clauses governing insurance. If the sources of income are not sufficient to meet these payments, then these latter must be reduced until receipts and expenditure balance each other. If the receipts do not suffice to pay 80 per cent. of the compensation, recourse must be had to the reserve fund in the proportion of one fourth of the amount of this fund. If even in this case a proportion amounting to 80 per cent. of the compensation claims

(1) Denkschrift des Staatsministeriums des Inneren, already quoted, p. 17 et seq.

cannot be met, the Institute is empowered to impose an additional payment up to 50 per cent. of the insurance premium. Even when it is not possible by these measures to pay off a least 80 per cent. of the compensation claims these latter must be still further reduced (1).

These measures were rendered necessary by the severe hail storms which occurred after 1924 and especially after the disastrous season of 1929, and their application has made it possible to continue public hail insurance in a country like Germany which suffers so severely from the effects of hail (2).

The following are the most important figures relating to the operations of the Institute in 1932. The number of insured persons was 108,307 with insured risks of 190,165,160 Rm. The premiums paid amounted to 4,485,432 Rm. Receipts for additional expenses amounted to 171,152 Rm. and the State contribution appearing in the budget to 600,000 Rm. The number of insurances were nearly the same as in 1931, while in 1931 the insured total had been 199,928,670 Rm., or higher by 9,800,000 Rm. The reduction is due mainly to the price decline. The annual receipts were 200,000 Rm. lower than those of 1931.

In 1932 compensation payments were made as in 1930 without any necessity for recourse to additional payments. This is also true of 1931, with the difference that as regards the latter year, it was necessary to reduce the compensation payments by 16 per cent. in consequence of the severe hail falls. The number of cases of damage in 1932 was 9,854 as compared with 18,019 in 1931. The claims compensated amounted to 1,502,750 Rm., or 0.79 per cent. of the total insured. The total expenditure, including administrative and valuation charges, was 2,930,660 Rm. The surplus amounted to 2,352,310 Rm. (3).

Passing to the organisation of the Hail Insurance Union (Incorporated) (*Öffentlichrechtlicher Hagelversicherungsverband*) it may be noted that this Union was established in 1928 and that it groups the majority of the public fire insurance undertakings dealing also with hail insurance in Prussia. This institution has taken the place of the joint insurance organisation of public fire insurance institutions operating hail insurance (*Mitversicherungsgemeinschaft der die Hagelversicherung betreibenden öffentlichen Feuerversicherungsanstalten*), formed in 1925, which had to be transformed in consequence of the disastrous season of 1927. On the basis of observation made in the course of three financial years it proved to be advisable to modify the insurance operated by the organisation in question, in such a way as to effect a higher compensation of risks and a working of this branch of insurance on a more uniform basis (4).

The Union, the head office of which is at Berlin, is a corporate body duly constituted by amalgamation of six public fire insurance societies, viz. *Feuer-*

(1) *Annuaire international de législation agricole de l'I. I. A.*, 1930, p. 859.

(2) *Geschäftsberichte der bayerischen Versicherungskammer für 1918 mit 1929. Munich p. 42. Landwirtschaftliches Jahrbuch für Bayern 1931 p. 585.*

(3) GOETZE: *Die Ergebnisse der deutschen öffentlichen Hagelversicherung im Jahre 1932. Die Versicherung* of 8 December 1932 p. 777.

(4) *Assekuranz Jahrbuch*, Vienna and Leipzig. Volume 48, p. 358.

*sozietät der Provinz Brandenburg, Niederschlesische Provinzial-Feuersozietät, Oberschlesische Provinzial-Feuersozietät, Land-Feuersozietät der Provinz Sachsen, Landschaftliche Brandkasse Hannover, Provinzial-Feuerversicherungsanstalt der Rhein-provinz.*

According to the terms of constitution of the Union (which in 1932 included eight societies), other Prussian public institutions operating hail insurance may be admitted to membership by the general meeting of the Union, provided that they undertake this branch of insurance on the basis of the conditions of insurance and on the rates established by the Union, or that they are prepared to subscribe to the principles governing the Union. With the consent of the Union non-Prussian institutions may also be admitted, and in this case certain exceptions may be allowed in respect of regulations forming part of the constitution of the Union.

In carrying out the purposes for which it was formed the Union has the right to request the co-operation of the member societies. The object of the Union is to carry on and develop public hail insurance on a mutual basis, with provision for reinsurance either on its own account or through an intermediary. In those territorial areas in which the member societies do not carry on this branch of insurance, hail insurance may be undertaken directly by the Union, provided that the consent is obtained of the public insurance society concerned with the territory in question. The Union may, if considered advisable for its own purposes, take part in the activity of other undertakings. It has the right to supervise the activity of member societies in respect of the conformity of such activity with the rules of the Union and of its general advisability. Such supervision is carried out by experts and in particular by means of audits, specially arranged, dealing with the whole course of the business of the member societies.

The obligations of the Union are guaranteed by its own capital constituted in accordance with the terms of the scheme for working as laid down by the general meeting, with the approval of the Minister of Internal Affairs. The union undertakes: (a) to take up the insurances of its members for the purposes of adjusting the risks; (b) to credit to its members the compensation payments made as well as the expenses of settlement of claims; (c) to credit to the member societies the administrative costs relating to the operation of hail insurance in accordance with a scale of rates established by the general meeting; (d) to establish the conditions of insurance and the rates of premiums to be observed by the member societies. On their side the member societies are to: (a) transfer to the account of the Union all hail insurance for the purposes of adjustment of risks; (b) to transmit to the Union all statistical documents required; (c) for the purposes of payment of the claims and of administrative costs effected by the Union to collect the annual premiums and additional payments required in accordance, with the scheme of working and to pay into the Union the sums so collected; (d) to take no measures in respect of the operation of hail insurance except with consent of the Union.

The surpluses on the years' working, if not assigned by the scheme to the technical reserves, are distributed to the member societies in proportion to their contributions of the three last years. Member societies are expected, after meeting

all obligations connected with hail insurance, to devote the surpluses thus distributed exclusively to benevolent or to public utility objects.

Supervision of the Union is exercised by the Minister for Internal Affairs of Prussia and extends over the whole of the activity of the Union. The supervising authority has the right to take all measures necessary for bringing the activity of the Union into accordance with the law, the terms of constitution and all provisions enacted on the basis of these. In this latter are enumerated all the principal measures that can be taken by the supervising authority. The Union is administered by the Administrative Council, the Executive Committee and the general meeting. All the rights and duties of these bodies are set out in the terms of constitution of the Union.

In the event of dissolution of the Union, the capital remaining after meeting all the obligations, and with the consent of the Minister of Internal Affairs, is distributed among the members in proportion to the contributions of the last five years (1).

It was open to the public fire insurance societies, which in 1925 undertook hail insurance as a subsidiary branch, to establish connection with the Bavarian Hail Insurance Institute, but they decided against doing so, mainly because this Institute made no provision for reinsurance, whereas the societies in question endeavour by this means to avoid the accumulation of losses experienced in the course of unfavourable seasons. These societies operate partly on the system of fixed premiums, partly on that of initial and supplementary payments (2).

The results of the season 1932 may now be given in respect of the six Prussian fire insurance societies which founded the Union, as previously enumerated.

The figures relating to the other two public societies (*Feuersozietät der Grenzmark, Danziger Feuersozietät*) which later formed part of the Union are insignificant and are therefore omitted.

In 1932 a total of 51,609 insurances were held with the Union with total insured risks of 276,431,375 Rm. and basic premiums amounting to 2,398,989 Rm. Of these 2,227 insurances only had been arranged on the system of fixed premiums with total risks of 14,959,055 Rm. and 104,776 Rm. in premiums. As compared with 1931 the insurances had increased by 2,179, the insured capital by 16,048,067 Rm., and the premiums by 27,001 Rm.

Compensation payments were made in 1932 by the Union to an amount of 1,968,189 Rm. on 4,648 claims, not including claims in suspense. In 1931 there were 7,600 claims and a total of payments of 5,000,000 Rm.

The majority of the Union's insurances are covered by reinsurance in return for additional payments (*Nachschussrückversicherung*). Only 1,308 insurances for a total sum of about 6,000 Rm. remain not covered by this reinsurance. Hence the large majority of the insurances contracted by the Union are in reality insurances effected on the basis of fixed premiums, although they are called insurances with variable premiums and with reinsurance effected in return for additional payments.

(1) Deutscher Reichsanzeiger und Preussischer Staatsanzeiger, 1 March Berlin 1928.

(2) Vortrag von Rohrbeck (already quoted) p. 4.

Some reference may now be made to the *Braunschweigische öffentliche Mobiliarversicherungsanstalt* which also undertakes hail insurance but is not a member society of the Union.

This Institute which has undertaken this branch of insurance since 1925 only concluded in the course of 1932 insurances to the number of 2,183 with a total insured risk of 14,523,925 Rm., and premiums collected to a total of 108,947 Rm. Compensation payments amounted to 3,574 Rm., or 3.3 per cent. of the receipts only. The figures relating to 1931 were as follows: 1880 insurances with a total insured capital of 13,218,630 Rm. and premiums amounting to 100,026 Rm. Compensation payments amounted to 20,672 Rm. This institution operates on the basis of fixed premiums carrying no obligation to make additional payments. The figures indicated are explained by the fact that Brunswick is an area little affected by hail, and also that the Institute does not effect insurances in regions where the hail risk is more severe. Premiums collected from 1925 onwards amounted to 404,824 Rm., and compensation payments to 71,660 Rm. only, or 17.5 per cent. of the receipts (1).

There is in Germany still another form of organisation of hail insurance based on a contract of co-operation between the public authorities and the private insurance business.

In Württemberg there has existed since 1909 a contractual relation between the State and the *Norddeutsche Hagelversicherungsgesellschaft a. G.* at Berlin; and in accordance with this convention the State undertakes to make additional payments on behalf of in place of all persons living in Württemberg who are insured in this institution. The *Norddeutsche* on its side collects from its Württemberg members, in favour of the State in question, a supplement over and above the net premium which during the years 1928 and 1929 amounted to 65 per cent. in each year. These supplements are paid into a hail insurance fund set aside for the purpose of making the additional payments. In the event of the basic payments and the fund in question not being sufficient to meet the full compensation payments, the State undertakes to pay further amounts. In the course of 1928 the State was obliged to pay to the *Norddeutsche*, after deduction of the additional payment of 65 per cent., the sum of 917,609 Rm. and in 1929 up to 3,000,000 Rm. The number of insured persons in 1929 was 86,479 and the total risks insured were nearly 122,000,000 Rm. No reinsurance exists whether in favour of the insured persons or in that of the State. It has proved possible to maintain this system, although Württemberg is an area of severe hailstorms.

In Baden there is also a contractual relation between the State and the *Norddeutsche* negotiated in 1925 and renewed in 1927. In accordance with this agreement the insured person is not obliged to pay as re-insurance premium more than 66 per cent. of the basic premium, while the State undertakes the payment

(1) *Die Versicherung* already quoted of 8 December 1932.



of the remainder of the reinsurance premium. During 1929 this premium amounted to 135 per cent. of the basic premium; and in consequence the State paid towards reinsurance 69 per cent. of the basic premium of its insured farming population. Insured risks amounted in the course of 1928 to about 55,000,000 Rm. and in 1929 to about 60,000,000 Rm. Taking into account the severe hail risks in this area the method of regulating hail insurance may be considered to be very satisfactory (1).

In Hesse in 1903 a 15 year contract had been negotiated between the State and the *Norddeutsche*, in virtue of which the State was to intervene with the means supplied by a State hail insurance fund in favour of any insured persons belonging to Hesse so as to meet the undertakings made by these in respect of additional payments. This contract was however formally rescinded in 1912 before its expiry, as it proved too costly for the State of Hesse (2).

F. ARCOLEO.

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TORREJÓN Y BONETA, A. *Economía y valoración agrícola, forestal y urbana*, 264 p., published by "Agro Español", calle Sagasta, 16, bajo, Madrid, 1934

[The principal object of this excellent work, recently published by the well-known agricultural expert, D Angel Torrejon y Boneta, is to assist not only specialists, but also all those who directly or indirectly are engaged in the sale and purchase of farm property, in all types of survey or valuation carried out in connection with agriculture, forestry or town property.

The author has omitted all theoretical explanation and has confined himself entirely to the practical side of the question. He most ably describes and analyses the various methods of valuation, using simple and scientific formulae and giving numerous practical examples and technical, statistical and economic information, extremely useful for the execution of all assessment work.

The book is divided into two parts. The first contains the following sections: — Fundamental principles and presuppositions of economics — Preliminary studies and examinations for assessment — Delimitation and surveying of land — Practical instructions for carrying out topographical work — Land taxation in general — Special assessments of pastures, kitchen gardens and uncultivated land — Assessments of land planted with trees or shrubs and also of nurseries — Forestry assessments — Assessments of standing crop — Water assessments — Assessment of buildings — Land improvement assessments — Assessments of dues and of real estate subject to taxes and charges — Estimation of estates in cases of eviction — Estimation of damages — Land credit — Estimation of rural and urban estates guaranteeing mortgage loans — Conditions and instructions of the Mortgage Bank for the granting of loans — Division of property, drawing up of inventories and balance sheets — Land tax and land register of rural wealth — Land registers of urban wealth — Land settlement and agrarian reform.

The second part is devoted to the study of the following subjects: — Arithmetic and Algebra — Mechanics — Natural grass land and sown grass land — Cultivation of trees and shrubs and the allied industries — Stock-breeding

This second part is of extreme interest to the farmer, stock-breeder and also the assessor, as it contains much practical information on the crops and herds in various part of Spain described in detail according to the crops and agricultural districts

An appendix gives the insurance rates in force in Spain for accidents in work, crop fires, etc.

(1) WEISS: Probleme der Hagelversicherung. Sonderabdruck aus dem Assekuranz Jahrbuch. 1932, p. 43.

(2) MANES: Versicherungswesen II Bd., Leipzig and Berlin 1931, p. 146. Denkschrift des Staatsministeriums des Innern, quoted, p. 16.

The wide scope of the work which includes not only purely technical subjects but much closely allied legal and economic material, is sufficient proof of the full competence of the writer and of his three sons who collaborated in its production.

There is evidence of considerable preparatory work; the volume is attractively produced and contains a number of tables and lists of great practical utility. The exposition is clear and simple.

The book, published by the "Agro Español" ranks among the many thorough pieces of work produced by the Spanish technicians]. A. P.

INTERNATIONAL LABOUR OFFICE — Geneva 1934. «Statistics of wages of agricultural workers in various countries, 1927-1934», p. 29.

[The statistical data which the International Labour Office has gathered from 27 different countries covering the wage scale of agricultural workers in most of Europe, the U. S. A., Canada, Mexico, Chile, China, India, Japan, Australia and New Zealand, must be accepted with caution as they are frankly declared by the Labour Office itself to be far from the precision reached in the compilation of data concerning the wage scale of industrial workers. Particularly in some cases it has been very difficult to get the information necessary to compile statistics covering a sufficiently long period to justify fairly definite conclusions relative to the trend of wages of the various categories of agricultural workers. In other cases however the Labour Office has been able to obtain the data covering the whole period under consideration, 1927-1934.

In a general way these statistics show that the wage scale of the agricultural labourer has been heavily affected by the world-wide crisis of these last five years. It is only in the first quarter of 1934 that one can notice signs of improvements as compared with conditions prevailing in the wage scale of farm workers since 1931-32.

The data submitted by the Labour Office admit also of some comparison in the wage scale in some of the countries where reliable data have been obtained. It does not appear however that the measures taken by the various governments in favour of agriculture during the period under consideration succeeded in influencing the trend of the wage scales. This holds true both in the case of exporting and importing countries. In the case of the former the contraction of exports caused a marked and steady reduction of wages; while the measures adopted in the latter to sustain prices (protective tariffs, quotas, etc.), failed to benefit the agricultural wage earner. Even with all the reservations as to their completeness and reliability which the Labour Office itself has made in the illustrative section of its study on agricultural wages, these data cannot fail to interest economists and students of agricultural questions at large as their collection and presentation are 'the first attempt to cover a field which has hitherto been little explored' ]. V. F.

KARL WALTER: Co-operation in Changing Italy. The Horace Plunkett Foundation. London, P. S. King and Sons, Ltd., 1934, X-80 pp.

FREPPEL COTTA: Agricultural Co-operation in Fascist Italy. London, P. S. King and Son, Ltd., 1935, XV-148 pp.

[The purpose of these two publications is to examine the situation and developments of co-operation under the Fascist regime. In both cases they represent the result of careful and valuable investigations carried out on the spot by the writers themselves, who have effected contact with the organisations and persons in Italy directly concerned with the cooperative movement.

Mr. Walter remarks that the place of co-operation in the new economic structure of Italy is of outstanding importance, and he gives a careful account of the movement, dealing in turn with consumers' co-operation, co-operation for farm requirements and marketing, processing and marketing, engineering and land reclamation, transport, building and tenancy, credit, insurance etc.

In the course of a study of the Italian co-operative system in agriculture and its main results, Mr. Cotta, shows how the Italian Government is encouraging this form of economic organisation which has found a unique application in the agricultural labour and cultivation societies (*affittanze collettive*), to which a chapter of special interest is devoted. A detailed examination of the organisation and the evolution of the principal types of Italian agricultural co-operation is presented in a systematic form likely to be of great value to students of the subject. Both publications are provided with excellent bibliographies].

ASSEKURANZ-COMPASS. Internationales Jahrbuch für Versicherungswesen. 43 Jahrgang. 1935. Wien (p. XXXI-1320).

[This Year Book, founded in 1893 by Gustav J. WISCHNIOWSKÝ, has this year reached its 43rd edition. It consists in a collection of the data relating to the insurance societies of 30 countries of Europe, 7 countries of Africa, 12 of America, and 9 of Asia and Australia.

Like the previous volumes, this one contains information in regard to the composition of the administrative bodies, the members' capital, the branches of insurance operated by the different societies in question, and, for a number of societies, the balance sheets of 1932 and 1933.

The contents of the 1935 edition have been enlarged; last year's volume contained 1264 pages, while in the present volume there are 1320 pages.

It is hoped that it will shortly prove possible to publish once again for the principal countries the introduction which for the editions up to 1931 preceded the analytical data].

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# MONTHLY BULLETIN

OF

## AGRICULTURAL ECONOMICS AND SOCIOLOGY

### THE IMPORTANCE OF PIG BREEDING FOR THE PROFIT CAPACITY OF AGRICULTURE IN CERTAIN COUNTRIES OF EUROPE FROM 1927-28 TO 1931-32

#### I. — DENMARK, NETHERLANDS (OVERIJSSSEL), SWITZERLAND, AUSTRIA, GERMANY.

In the present article it is proposed to investigate the development of pig breeding in certain European countries and the effect of the progress of this branch of farming on the returns from agriculture in these countries. The enquiry will be based essentially on the analysis of the farm accountancy results available for these countries. From study of the accountancy data relating to examples of different types of farms representative of the region to which they belong, taken together with other statistical and economic information available in regard to the countries in question, it becomes possible to distinguish certain tendencies which have appeared in the course of the period under review. While avoiding any rash generalisation, some valuable conclusions may none the less be often reached from such an examination of the material.

In any study of the development of the pig breeding which forms an integral element in certain groups of farms in a large number of European countries, it is essential in the first place to distinguish certain leading trends in this development according to countries; and then to carry the enquiry a stage further by means of a comparative study of the position of this branch of farming according to regions and farming systems. Taking first a general view, which will enable us to distinguish certain general tendencies discovered on examination of the averages of the countries, tendencies giving an approximate and imperfect idea only of the phenomena studied, the next step will be to pass on to more exact observations of the various aspects of the details of this branch of farming.

It is clear that the study of pig breeding, which, in the very complex structure of European farming, is closely connected with all other branches, must include some consideration of the other branches agricultural of production.

The various phases in the development of pig breeding are simply the result of the rival claims, as between this branch of agriculture and the other branches, such as cattle breeding, dairying, arable cultivation, etc., for the use of the land, of the available labour and of the farmer's capital. These rival claims are decided by the farmer himself after weighing the relative advantages of these different methods of utilising his resources.

Some of the advantages which certain branches of farming have over others are due to permanent factors, such as climatic or agrogeologic conditions, while others depend on variable factors, such as prices, general economic conditions, etc. In consequence these advantages tend also to have either a relatively permanent or a variable character, and in certain circumstances, the influence of one or another group of factors on the position of a given branch of production may be weakened or even completely neutralised by the opposing influence of others. Thus — and this is precisely what is occurring at present in the majority of countries — the pursuit of a certain economic or commercial policy in regard to maintaining or raising the prices of agricultural products may result in the artificial creation of conditions in which the unremunerative situation of such branches of production, due to permanent factors, may be converted into an advantageous situation. This enquiry will show how the position of various branches of agriculture, and of pig breeding in the first instance, in the various countries, has been influenced by these acts of intervention in economic life, the object of which was to alter the situation in favour of one or another branch of farming which happened to be unremunerative.

An attempt will thus be made here to note and to analyse the effect on the different branches of farming and especially on pig breeding of the various measures taken by Governments for the protection and encouragement of farms and farming. In this way some idea may be gained of the reactions to these measures from the international standpoint, and the enquiry, based as it is on the objective data of farm accountancy, will show the influence of the agricultural or commercial policy of certain countries on the form assumed by, and the returns from, one or another branch of agricultural production in other countries. As these enquiries are pushed further, and as the accountancy results for the years from 1932-33 onwards become available, we shall be enabled to draw conclusions, valuable alike on the theoretical and the practical side, in regard to the results of planned economy developments in agriculture, and to the reactions noted in the international sphere to the different national programmes of farm relief. These reactions are partly discernible in the general statistics of the countries reviewed; but this study of accountancy results alone make it possible to establish with any degree of certainty their effects on the internal structure of farming on the return from the different branches and on the complex interplay of the relations between these branches.

With these general remarks, we may pass to the study of the variations in the earning capacity of agriculture in the countries under review for the period from 1927-28 to 1931-32 for which the accountancy data are available. This article will deal with Denmark, the Netherlands, Switzerland, Austria and Germany; a later study will be made of the development which has taken place over the same period in another group of countries, *viz.*, Norway, Sweden, Finland, Poland, Lithuania, Latvia and Estonia.

The accompanying tables indicate the changes that have occurred, from 1927 to 1931, in the net return of the agriculture in the five countries reviewed in the present article, as well as in the items of the gross return and of the farm expenses.

At the beginning of this period, the effects of the crisis and of measures of restriction and regulation were not yet in evidence, but from 1930-31 onwards the economic depression began to be increasingly felt, together with the effects of the regulation of production of and trade in agricultural products and of the progressive restriction of trade channels. In Austria, to judge from the examples for which accountancy data are available, the net return from agriculture fell in 1931-32 below zero. In Denmark and in Overijssel (Netherlands) the net return, after showing considerable increase in 1929-30, fell in 1931-32 even lower than in Austria, in Overijssel the decrease in the net return from 1929-1930 to 1931-32 has been actually more than 400 gold francs per hectare (643 francs per unit of area of 1.64 ha.). In Switzerland and in Germany on the other hand, conditions of production have remained comparatively stable. In Switzerland, the net return, after an increase in 1929-30, as compared with 1927-28, of more than 200 gold francs per unit of area of 1.6 ha. (or about 125 gold francs per ha.), reverted in 1931-32 to the level of 1927-28. In Germany, owing to the Government protective measures, the farmers were enabled to increase their return, and it was not till 1931-32 that the net return of German agriculture tended to revert to the 1927-28 level, without however falling below zero, as had been the case at the earlier date.

Taking the countries separately in fuller detail, in DENMARK the net return of the farms in 1928-29 was more than doubled in respect of the 1927-28 figure. This increase may be attributed mainly to the higher gross return from pig breeding, both prices and production having risen. Exports of bacon and pig meat increased by 6 per cent. only, exports of milk and milk products by 3 per cent., and egg exports fell by 6 per cent. (1). Denmark began to export beef, but at the same time cattle exports diminished so that the total Danish exports of cattle breeding products finally remained stationary.

A slight increase in the gross return from dairying, from cereal and root crop cultivation, and from other branches, is to be noted; prices and also production of milk and derivatives increased. In regard to cereals and root crops, yields were small in 1927-28; in the following year there was a brisk demand, so that much larger quantities of cereals were sold, and there was a large importation of potatoes, amounting to 180 per cent. more than in 1927. Prices and production of eggs slightly rose in 1928-29; the gross return from this branch diminished somewhat, the effect probably of a fall in the yield from poultry farming, as exports of eggs and egg products declined somewhat; this diminution was however comparatively unimportant. The gross return from pig fattening was very satisfactory; dairying had also been profitable, and the gross return was higher in 1928-29 than in any succeeding year, as compared with 1927. On the other hand, the farm expenses were at a somewhat lower level than in 1927-28; the labour costs were somewhat less heavy and the purchases of feeds, of so great an importance to Denmark, bulked rather less heavily in the farm expenses.

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(1) According to the calculations made by the Farm Accountancy Bureau of the Institute.

TABLE I. — *Increase or Decrease in the Net Return, Gross Return*  
Gold francs per

	Net return	Gross Return						
		Pigs	Milk and milk products	Stock breeding (slaughter beasts etc.)	Cereals root crops	Other branches	Total	
Denmark:								
1927-28 . . . . .	100	577	691	263	114	116	1,761	
1928-29 . . . . .	+ 243	+ 133	+ 33	— 15	+ 11	+ 9	+ 171	
1929-30 . . . . .	+ 206	+ 138	— 3	— 7	— 43	+ 9	+ 94	
1930-31 . . . . .	— 69	— 82	— 103	— 40	— 62	— 3	— 290	
1931-32 . . . . .	— 121	— 231	— 266	— 124	— 65	— 32	— 718	
Overijssel:								
1927-28 . . . . .	— 73	— 253	— 78	+ 41	— 9	— 91	— 390	
1929-30 . . . . .	+ 191	— 222	— 65	+ 161	+ 5	— 90	— 211	
1930-31 . . . . .	— 3	— 380	— 173	+ 98	— 27	— 94	— 576	
1931-32 . . . . .	— 352	— 436	— 288	— 178	— 48	— 116	— 1,066	
Switzerland:								
1927-28 . . . . .	+ 103	— 386	— 12	+ 174	+ 28	+ 432	+ 236	
1928-29 . . . . .	+ 206	— 416	+ 76	+ 181	+ 39	+ 420	+ 300	
1929-30 . . . . .	+ 318	— 379	+ 52	+ 226	+ 32	+ 442	+ 373	
1930-31 . . . . .	+ 298	— 358	— 16	+ 316	+ 14	+ 328	+ 284	
1931-32 . . . . .	+ 105	— 417	— 49	+ 203	+ 25	+ 398	+ 160	
Austria:								
1927-28 . . . . .	+ 27	— 467	— 560	— 139	— 21	+ 47	— 1,140	
1928-29 . . . . .	— 21	— 494	— 570	— 174	— 31	+ 29	— 1,240	
1929-30 . . . . .	— 30	— 478	— 571	— 154	— 45	+ 20	— 1,228	
1930-31 . . . . .	— 59	— 474	— 568	— 149	— 55	+ 12	— 1,234	
1931-32 . . . . .	— 111	— 489	— 587	— 209	— 51	+ 9	— 1,327	
Germany:								
1927-28 . . . . .	— 102	—	—	—	—	—	— 946	
1928-29 . . . . .	— 41	— 493	— 540	— 152	+ 286	+ 104	— 795	
1929-30 . . . . .	— 53	— 492	— 559	— 156	+ 282	+ 72	— 853	
1930-31 . . . . .	— 73	— 515	— 567	— 165	+ 238	+ 61	— 948	
1931-32 . . . . .	— 93	— 528	— 588	— 194	+ 191	+ 46	— 1,073	

(1) The net return of Danish farms in 1927-28 is taken as basis of comparison; the absolute figures the first line of the table, form the basis of comparison, the figures for the other years and the other unit of area adopted here, viz., the area (1.64 ha) which corresponds to a net return of 100 francs in Denmark

*and the Cost of Production from 1927-28 to 1931-32 (I)*

unit of area.

Farm Expenses						Interest on capital	Cost of production
Labour	Fertilisers	Seed and forage	Taxes	Other expenses	Total		
616	68	688	64	225	1,661	268	1,929
— 24	— 2	— 44	— 4	+ 2	— 72	— 2	— 74
— 25	+ 4	— 107	— 9	+ 25	— 112	— 5	— 117
— 46	+ 2	— 173	— 7	+ 3	— 221	— 4	— 225
— 196	— 25	— 291	— 20	— 65	— 597	— 54	— 651
— 104	+ 35	— 164	— 50	— 34	— 317	+ 21	— 296
— 108	+ 67	— 257	— 45	— 59	— 402	+ 72	— 330
— 113	+ 16	— 340	— 45	— 91	— 573	+ 76	— 497
— 166	— 15	— 385	— 44	— 104	— 714	± 0	714
+ 344	— 30	— 477	— 16	+ 312	+ 133	+ 317	+ 450
+ 307	— 34	— 463	— 18	+ 302	+ 94	+ 303	+ 397
+ 267	— 29	— 457	— 14	+ 288	+ 55	+ 295	+ 350
+ 245	— 34	— 402	— 21	+ 258	— 14	+ 313	+ 299
+ 221	— 34	— 443	— 19	+ 330	+ 55	+ 327	+ 382
— 302	— 58	— 646	— 45	— 116	— 1,167	— 124	— 1,291
— 347	— 57	— 649	— 46	— 120	— 1,219	— 133	— 1,352
— 342	— 57	— 653	— 43	— 103	— 1,198	— 128	— 1,327
— 340	— 57	— 648	— 42	— 88	— 1,175	— 120	— 1,295
— 372	— 60	— 640	— 45	— 99	— 1,216	— 130	— 1,346
— 235	+ 6	— 586	— 20	— 9	— 844	—	—
— 203	+ 15	— 577	— 9	+ 20	— 754	—	—
— 217	+ 17	— 600	— 17	+ 17	— 800	—	—
— 236	+ 2	— 611	— 22	— 8	— 875	—	—
— 285	— 13	— 623	— 23	— 36	— 980	—	—

expressing gross return, farm expenses, interest on capital and cost of production in Denmark for 1927-28, in countries show the difference, positive or negative, in each case. All the figures refer to the conventional in 1927-28.



TABLE II. — *Prices in Gold Francs of the Chief Agricultural Products (\*)*.  
(Data supplied by the Accountancy Offices and the International Yearbook of Agricultural Statistics).

Designation	Cereals q	Potatoes q.	Beet kg.	Pig meat kg.	Milk litre	Butter kg.	Cheese kg.
<b>Denmark:</b>							
1927-28 . . . . .	27.97	18.84	1) 0.69	2) 1.80	0.21	4.19	1.17
1928-29 . . . . .	25.54	16.04	1) 0.65	2) 1.97	0.22	4.35	1.16
1929-30 . . . . .	22.71	13.57	1) <b>0.93</b>	2) <b>2.23</b>	0.21	4.08	1.09
1930-31 . . . . .	16.19	11.47	1) 0.84	2) 1.35	0.15	3.11	0.90
1931-32 . . . . .	13.44	10.72	1) 0.47	2) 0.82	1.11	2.20	0.65
<b>Overijssel (Netherlands):</b>							
1927-28 . . . . .	23.41	15.02	3) 2.06	1) 1.37	—	4.33	2.21
1929-30 . . . . .	20.21	7.82	3) 2.19	1) 1.65	—	4.05	2.10
1930-31 . . . . .	14.40	10.43	3) 2.07	1) 1.02	—	3.26	1.72
1931-32 . . . . .	25.92	8.23	3) 1.59	1) 0.73	—	2.38	1.30
<b>Switzerland</b>							
1927-28 . . . . .	42.38	14.34	1) 1.70	1) 2.22	0.24	4.81	2.50
1928-29 . . . . .	42.18	13.75	1) 1.68	1) 1.86	0.27	4.91	2.70
1929-30 . . . . .	42.26	14.48	1) <b>1.73</b>	1) 2.01	0.26	4.98	2.71
1930-31 . . . . .	41.85	14.12	1) <b>1.83</b>	1) <b>2.25</b>	0.24	4.75	2.44
1931-32 . . . . .	39.43	11.64	1) 1.77	1) 1.74	0.23	4.57	2.28
<b>Austria</b>							
1927-28 . . . . .	30.17	17.12	1) 1.76	3) 2.16	0.27	3.90	—
1928-29 . . . . .	28.90	11.11	1) 1.53	3) 2.04	0.27	3.72	—
1929-30 . . . . .	25.04	10.28	1) <b>1.86</b>	3) <b>2.49</b>	0.26	3.77	—
1930-31 . . . . .	20.34	9.33	1) <b>1.87</b>	3) 2.12	0.26	3.32	—
1931-32 . . . . .	17.93	10.23	1) 1.68	3) 1.57	0.24	2.90	—
<b>Germany:</b>							
1927-28 . . . . .	31.40	4.55	1) 1.46	1) 1.47	0.23	4.50	2.94
1928-29 . . . . .	26.92	3.17	1) 1.41	1) 1.83	0.22	4.49	2.73
1929-30 . . . . .	30.95	5.27	1) 1.42	1) <b>1.91</b>	0.21	4.10	2.54
1930-31 . . . . .	32.41	4.04	1) 1.30	1) 1.36	0.22	3.46	2.36
1931-32 . . . . .	28.71	4.34	1) 0.92	1) 1.07	0.18	2.98	2.19

(\*) The highest prices are shown in thick type in the table

(1) Live weight. — (2) Bacon. — (3) Meat

In 1929-30 the net return, which was still very high, began to fall. The farm expenses however continued to show a marked decline as compared with 1927-28. The harvests of 1928 had been very abundant, and thus Denmark was able to reduce imports of cereals (including maize) and of potatoes, as appears from the following figures where the 1927 imports are taken as equal to 100 (1):

Imports of cereals in 1929. . . . .	63
Imports of potatoes in 1929 . . . . .	37

TABLE III — *Production per hectare from 1927-28 to 1931-32*

Designation	Production per ha (1)			Gross Return (in quantities) (2)					Gross Return as percentage of the production	
	Cereals	Pota- toes	Sugar beet	Cattle live weight	Milk	Pigs live weight	Cereals	Pota toes	Cereals	Pota toes
	q	q	q	kg	kg	kg	q	q	%	%
<b>Denmark</b>										
1927-28	9 10	1 92	4 —	107	1 557	131	1 51	0 81	17	42
1928-29	11 79	3 98	4 36	108	1 579	152	2 —	0 69	17	17
1929-30	11 79	3 64	3 09	80	1 609	142	1 28	0 61	11	17
1930-31	10 43	3 14	3 43	70	1,848	149	1 01	0 72	10	23
1931-32	9 98	2 83	2 54	47	1,778	128	1 01	0,85	10	30
<b>Overijssel</b>										
1927-28	4 98	11 08	7 99	128	1,920	144	2 64	—	53	—
1929-30	6 78	20 19	8 95	166	2,120	231	5 04	—	74	—
1930-31	5 19	15 14	9,25	154	2,179	118	6 19	—	91	—
1931-32	4 78	13 59	4 45	10	2 304	118	2 91	—	—	—
<b>Switzerland</b>										
1927-28	3) 1 13	3) 3 25	0 21	146	1 727	52	1 36	2 38	—	73
1928-29	3) 1 10	3) 2 97	0 22	139	1 734	53	1 51	2 51	—	84
1929-30	3) 1 07	3) 3 62	0 20	152	1 745	60	1 50	2 19	—	60
1930-31	3) 0 93	3) 2 62	0 19	170	1 718	59	1 32	2 05	—	78
1931-32	3) 0 98	3) 3 33	0 18	135	1,704	56	1 56	2 83	—	85
<b>Germany</b>										
1927-28	—	—	—	—	—	—	—	—	—	—
1928-29	8 57	14 —	3 75	33	436	38	6 87	5 61	80	40
1929-30	9 41	13 64	3 77	38	382	27	7 56	5 35	80	39
1930-31	7 58	16 —	5 06	35	343	28	7 04	3 50	93	22
1931-32	7 52	14 94	3 77	34	351	28	6 21	3 22	83	22
<b>Austria</b>										
1927-28	2 56	1 22	1 06	35	295	46	1 80	0 48	70	11
1928-29	2 51	3 48	0 63	29	273	38	1 32	0 86	52	25
1929-30	2 47	4 07	1 —	29	281	36	1 25	0 62	50	15
1930-31	2 33	3 71	1 37	26	288	43	1 59	0 66	68	18
1931-32	1 97	3 69	1 33	14	264	51	1 30	0 60	66	16

(1) Figures based on the data of the International Yearbook of Agricultural Statistics and referring to the area used as basis for the transformation calculations of accountancy results, such area not being the same throughout, as certain Offices include in the area forests, waters, etc., while others exclude these. In consequence the figures are not precisely comparable from one country to another.

(2) Figures based on accountancy data, and referring also for each country to an area calculated according to the usage of the Offices, as already explained under (1). In the first three columns are shown the quantities harvested per hectare of the area as taken into consideration, in the five following columns are shown the quantities which are components in the gross return, i.e., the quantities marketed or consumed by the farm household, excluding those transformed on the farm. This accounts for the varying difference shown.

(3) The area is estimated.

TABLE IV. — *Labour in man-days per ha. and wages in gold francs per man-day of a farm worker (\*)*.

Designation	Labour in man-days					Farm wages in gold francs per man-day				
	1927-28	1928-29	1929-30	1930-31	1931-32	1927-28	1928-29	1929-30	1930-31	1931-32
Denmark . . . . .	(1) 45	(1) 45	(1) 43	(1) 43	(1) 42	8.39	8.23	8.29	8.14	6.09
Overijssel . . . . .	60	—	60	60	58	5.20	—	5.18	5.11	4.74
Switzerland . . . . .	75	73	70	67	71	7.81	7.72	7.70	7.85	7.20
Austria . . . . .	64	70	69	70	64	2.98	2.35	2.42	2.57	2.41
Germany . . . . .	—	—	—	—	—	—	—	—	—	—

(\*) Accountancy data.

(1) Arithmetic mean given by the Office. The average given in *Farm Accountancy Statistics* is a weighted average calculated by the Institute.

The gross return diminished by about 80 gold francs per unit of area since 1928-29. Apart from bacon and eggs. Danish exports increased in 1929, taking 1927 as 100 (1).

#### *Danish Exports in 1929.*

Cattle . . . . .	103
Beef . . . . .	214
Bacon and pigmeat . . . . .	97
Milk and derivatives . . . . .	111
Eggs . . . . .	91

As the prices of pigs had gone up in 1928-29, the Danish farmers made purchases from abroad of ten times as many porkers as in the previous year. Prices of pigs and of pig meat however still rose and the gross return from pig breeding was slightly higher than in 1928. Dairying began to show the effects of the low prices of milk and derivatives; cattle breeding improved somewhat, owing to the rise in cattle prices. The fall in cereal and potato prices helped to aggravate the loss on dairying, and although the gross return from pig breeding showed no decline, the total gross return was, as already stated, 80 gold francs per unit of area (1.64 ha.) lower than in 1928-29.

In 1930-31 the volume of Danish exports of agricultural products was increased, taking 1927 as 100 (1):

Cattle . . . . .	64
Beef . . . . .	862
Bacon and ham . . . . .	120
Milk and derivatives . . . . .	118
Eggs and derivatives . . . . .	102

Beef was more readily exported than cattle and there was a decreased production of cattle. Owing to the collapse in prices of agricultural products the gross return was less by 383 francs per unit of area than that of 1929, the gross return from pig breeding alone fell by 220 francs, and the gross return from dairying by 100 francs. Farm expenses were reduced by 108 francs only, labour was somewhat cheaper, maize prices had fallen considerably, and potato imports were reduced by 58 %. Generally the net return had declined by 275 francs as compared with that of 1929-30.

In 1931-32 Denmark began to give constantly increasing attention to sheep and poultry farming. Whereas in 1927-28, the production of beef was 107 kg. (live weight) per hectare, it was 47 kg. only in 1931-32, while at the same time milk and pig production slightly diminished after 1930-31, and the importation of porkers was reduced by one half. In 1931-32 the position of the export trade was as under, taking 1927 as 100 (1):

Cattle . . . . .	47
Beef . . . . .	1403
Bacon and pigmeat . . . . .	147
Milk and derivatives . . . . .	119
Eggs and derivatives . . . . .	116

Since 1930 the collapse in prices has been very striking; the branch of production most affected was pig fattening; dairying less so, and other branches even less still. The crisis, however, had very grave effects; in 1931-32 the total gross return in 1931-32 showed a decline of 718 francs per unit of area (1.64 ha.) as compared with that in 1927, and of 429 francs as compared with the return in 1930-31. It was impossible to effect a similar reduction in farm expenses. Although the farm worker received 2 francs less per working day and although the price of maize fell sharply, the farm expenses did not show a decline corresponding to that of the gross return, and *the net return was negative* (2). It should be added that in 1931-32 there was a general fall in interest on capital.

In 1931-32 the prices of concentrated stock feeds and chemical fertilisers diminished respectively by 9 and 13 per cent., as compared with the same prices in 1930; on the other hand, the fall in the prices of building materials, farm equipment and machinery was quite inconsiderable. As already stated the fall in wages was more marked.

Among prices of the different agricultural products, the most serious fall was that in prices of live stock products, which reached a level below that of the pre-war period. The increase in the production of bacon, butter and eggs did not make up for the collapse in prices.

(1) International Year-book of Agricultural Statistics

(2) i. e., the farm expenses are higher than the gross return. In Table I, col. 1, this is understood whenever a figure is shown preceded by the minus sign (—) and in absolute value above 100 (= Denmark).

*Price Falls for Farm Requisites (1927 prices = 100) (1):*

	1930	1931
Stock feeds . . . . .	91	83
Fertilisers . . . . .	93	81
Building materials . . . . .	181	177
Equipment . . . . .	149	148
Wages . . . . .	179	168

In OVERIJSEL pig breeding is also of great importance, but the farming centres on stock breeding and dairying. Figures for 1928-29 are not available, but in 1929-30 the net return showed an increase of 364 francs of unit of area as compared with 1927-28. In 1929-30 the fall in milk prices would have brought about a six per cent. reduction in the gross return for dairying, had not milk production increased to such a degree that the gross return from this branch of farming actually shows a slight rise.

The gross return from pig breeding did not increase in the same proportion as pig prices, and the export of pigs fell from 90,000 units in 1927-28 to 28,000 in 1929-30. On the other hand there continued to be good markets for cattle in foreign countries; the export of beef was seven times larger in 1930 than in 1927; prices were firm and the gross return from cattle farming rose by 121 francs per unit of area as between 1927-28 and 1929-30. Owing to plentiful harvests, the Netherlands imported less fodder in 1929 than in 1927; the feed expenses fell by about 100 francs per unit of area. Except for expenditure on purchases of fertilisers, the other farm expenses also showed declines since 1927-28, and as the gross return was considerably higher, the net return showed a very considerable increase.

In 1930-31 however there was a sharp fall, almost to the level of 1927-28. The export of pigs and of pigmeat had continued to fall gradually but considerably, and in consequence in 1930-31 prices, production, and as a result the gross return from pig meat fell sharply also. The gross return from dairying would have diminished in 1930-31 still further than it actually did, if the milk production had not increased. Markets for cattle continued to be good, and the gross return of this branch of production was higher than in 1927-28, but did not attain the level of 1929-30, the gross return from pig breeding fell by 158 francs per unit of area, that of the dairying industry by 177 francs, that of cattle breeding by 64 francs and the total gross return by 365 francs.

The decrease in farm expenses was, as in Denmark, less abrupt. Labour costs remained nearly the same; expenses for purchase of feed decreased by 93 francs from 1927-28 to 1929-30 and by 176 francs from 1927-28 to 1930-31; imports have increased but prices, especially of maize, have fallen. General expenses show slow but steady reduction from 1927-28 to 1931-32.

In 1931-32 the net return for Overijssel was *negative*; it fell as far below zero as it had risen above zero in 1929-30. The increase in milk production continued until the end of 1931 when a check was experienced. Exports of

cattle declined in the second half of 1931. Production of pigmeat remained the same. On the other hand, there was as in Denmark an immense development in egg production, but in the second half of 1931 prices collapsed, and the poultry farmers lost their usual profit. Prices of potatoes fell in 1931-32, but wheat prices rose as the result of Government subsidies and the area sown in 1931 was 35.2 per cent. more than in 1930. Serious difficulties were encountered in the export of horticultural products, and the volume was reduced.

The Government was however endeavouring to protect agriculture against the prejudicial effects of the crisis. In 1931 there came into force the law on the compulsory admixture of national wheat with imported wheat; the percentage of national wheat was fixed at 22  $\frac{1}{2}$ , which would amount to a consumption for the Netherlands of 1,690,000 quintals of national wheat. The price of wheat was fixed at 12.50 florins at the farm. To cover expenses, the importer paid, at the time of importation, 2.50 fl. per quintal. The law on imports in times of crisis fixed the quotas of beef at 60 per cent. of the average values imported from each country in 1929, 1930 and 1931. The law on exports in time of crisis is intended to regulate export into countries which have limited their imports.

As a result of the government measures the gross return from wheat and root crop cultivation in 1931-32 remained at the same level as in 1930. The farmer however sold less of his cereals, as he needed them for feeding his poultry the numbers of which had so greatly increased. Less attention was given to stock farming; whereas in 1930, the production of cattle was still 154 kg. of live weight per hectare, it was 10 kg. only in 1931. The gross return from cattle breeding is the one which shows the largest decline, the gross return from milk production has fallen to a much less extent, and that of pig breeding still less. Taken together however these reductions were very considerable, and the total gross return in 1931-32 showed a decrease of 500 francs per unit of area since 1930, and of 850 francs since 1929. The farmer employed rather less labour in 1931-32, and farm wages fell considerably. His current expenses were reduced, and there was a marked fall in the prices of fodder and especially of maize. Farm expenses could thus be reduced but not sufficiently, since, while from 1929-30 to 1931-32 the total gross return declined by 850 francs, the farm expenses fell only by about 310 francs per unit of area.

In SWITZERLAND profit capacity of agriculture showed an improvement both in 1928-29 and in 1929-30. The gross returns from pig and cattle breeding in 1929-30 were higher than in the previous period. Farm expenses diminished slowly and not to any marked degree; labour costs were slightly lower. Production of milk increased each year up to 1930-31, when it received a check, and this increase took place despite a very marked fall in the export trade. Pig prices in 1928 showed a 16 per cent. reduction, and in consequence the Federal Council caused the frontier to be closed, and the next year prices showed a recovery of 7 per cent., while production increased by 13 per cent., and gross return by 20 per cent. As there was an increasing demand for pigs in 1930 imports were increased tenfold without interfering with the sale of home grown pigs, since prices were still going up by 10 per cent.

Market conditions for cattle were very similar to those of the market for pigs. The frontier was practically closed to imports in 1928 and wholly closed in the following year. Thus a rise in prices followed with a resumption of imports in 1930 without prejudicing the returns from cattle breeding. The two per cent. rise in the total gross return, which occurred as between 1927-1928 and 1930-31 in spite of the fall in prices of milk and of crop products, was due to the cattle breeding and pig fattening.

In 1931-32 pig prices reverted to their 1928-29 level and the gross return of this branch decreased in accord with the prices. Beef production declined in 1931-32; there was a slight fall in prices and the gross return from cattle breeding also fell almost to the level of 1928-29. Milk prices had never reached so low a level since 1927-28 as in this year; on the other hand milk production was maintained and the gross return showed a slight decline only. Farm expenses in 1931-32 increased by 69 francs per unit of area; the increase being in the item of current expenses which are very high in Switzerland owing to the cost of living.

After following an upward curve from 1927-28 to 1929-30 the profit capacity of Swiss agriculture then fell again and in 1931-32 reached its original starting point of 1927-28. In Switzerland in 1931-32 there was as yet no marked evidence of the crisis, or at least it had not attained the degree of severity already experienced in other countries although its proximity was clearly felt. National production of slaughter cattle and of pigs was seriously hampered in 1931-32 by the importation of cheap preserved meats on a large scale. The export trade in dairy products showed a marked set-back, while the imports of butter and cheese were increased.

In AUSTRIA the net return fell by about 50 francs per unit of area between 1927-28 and 1928-29, because the gross return diminished by 100 francs whereas the farm expenses declined by 50 francs only. This position remained unchanged until 1931-32 in which year the net return became *negative*.

Austria which imported 774,000 quintals of dairy products in 1927, ceased to import in 1929, and in 1930 became itself an exporter of dairy products. The production of pigmeat, of which Austria is an importer on a large scale, was maintained, but the gross return from this branch is very sensitive to price variations.

There was continuous restriction in cattle imports, and while prices hardened there was a marked decline in production.

In 1928 there was a glut in the importation of Polish pigs on the Vienna market. The result was a fall in prices which was reflected in the prices of slaughter cattle and proved a serious menace to the stock breeding industry. An agreement was however made with Poland with regard to quota fixing and a temporary improvement resulted on the pig market which gave a certain fillip to the national pig breeding industry.

The dairying industry, protected as it was by tariffs, showed comparatively steady returns. The town dues on milk were abolished, as prices of manufacturing, or industrial milk do not affect fluid milk prices. Since the price of butter depends essentially on the prices of butter on the world market, an effort

has been made to protect the national milk production by the establishment of an Equalisation Fund.

The gross returns from crops are those which have least varied since 1927-28. Agricultural production in Austria is of a very varied nature: the Eastern plains and the banks of the Danube are mainly under arable cultivation, and are suitable for cereal growing and for root crops. Vine growing is successfully carried out where the soils are suitable. Fruit growing is well developed on the plainlands at the base of the Alps, and in the valleys of the Alps which are favourably situated.

The outlook for pig breeding continues to be favourable seeing that good supplies of feed from potato cultivation and dairy residues are available.

In 1931-32 cattle production received a marked set-back causing a decline in the gross return. Taking this together with the less serious declines occurring in the gross returns from pig breeding and from dairying, a decline of 93 francs per unit of area is found in the total gross return as compared with 1930-31. Farm expenses fell by 40 francs only, and as the margin between the farm expenses and the gross return was already small in 1930-31, this fall made the net return of 1931-32 *negative*.

In discussing GERMANY as a whole, account must always be taken of the limitations imposed on any general conclusions by the size of the country and the great diversity of its agriculture. Only by studying the different regions of Germany can a judgment be formed of the trends of the development which is taking place in the structure of German farming and in its production. Moreover in comparing the relative advantages of the different branches of farming in Germany with those of other countries, it is essential to have recourse not to the general averages, but to the data of the separate regions, contained in the accountancy material. The limitations indicated apply in one degree or another to all countries, but in the case of a large country with a highly diversified agriculture a special importance attaches to their observance. Accordingly it is with this reserve that any examination is here undertaken of the figures for Germany.

The net return from German agriculture was in 1927-28 *negative*, but in 1928-29 it increased considerably. Since then, the Government has taken strong remedial measures to counteract the depression, and although the net return from 1928-29 to 1931-32 has shown a constant diminution, in 1931-32 it remained positive. The gross return from live stock production declined from year to year in correspondence with the steady fall in prices, which was general except for the rise in pig prices in 1929, a rise accompanied by a slight increase in the gross return from this branch of live stock production. In 1931-32 the total gross return was lower than in 1927-28, but the net return was higher owing to a decline in farm expenses, due in part to the fall in the cost of labour which fell steadily from 1927-28 to 1931-32.

The observations made here in respect of Germany are of a general character only. Later when the general investigation is concluded, the detailed enquiry will be undertaken for Germany on the development of pig breeding according to regions and farming systems.

JOSEPH DESLARZES.



## STUDIES ON THE INTERNATIONAL MARKET FOR AGRICULTURAL PRODUCTS

### II. — Costs and Prices: Some Factors of the Evolution of Mechanical Power in Farming.

#### I.

The purpose of this article is to investigate how far the relation between prices of the sources of power utilised in agriculture, *viz.*, coal, petrol or motor spirit, electric current, etc., on the one hand, and on the other prices of agricultural products, has influenced the use of mechanical power in agriculture.

Certain limitations are however imposed on any treatment of the subject from the international standpoint, since there are remarkably few statistics obtainable on the employment of power machinery in agriculture, and especially few relating to long periods. The majority of the countries neither possess nor publish farm returns including utilisation of power machinery in agriculture, while for a certain number of countries only one census of the kind has been taken in recent years, or only a part of the machines so employed have been included in the census.

It is for this reason that this article is confined to the position in four countries only, *viz.*, Great Britain, Germany, the United States of America and Italy. From the statistics, however, available for these four countries valuable information may be obtained as to the development of the use of power machinery in agriculture.

Moreover the price relations as calculated reflect the situation of the growers in regard to the most important sources of power, fuels, etc., in the period under review from 1924 to 1933.

#### II. — GREAT BRITAIN.

The development of the utilisation of machines in agriculture in England and Wales from 1925 to 1931, the two years for which corresponding data are available, appears to be as follows:

#### *Number of Agricultural Engines returned as used on farms in England and Wales.*

	1925	1931
Steam engines . . . . .	3,731	2,246
Oil and petrol engines . . . . .	56,744	65,725
Electric motors . . . . .	700	2,475
Motor tractors:		
(a) for field operations . . . . .	14,565	16,188
(b) for stationary work . . . . .	2,116	2,465

From this table it will be seen that in the course of these six years the number of steam engines was reduced by 1,485, or by 40 per cent.; on the other hand the number of oil and petrol engines increased by 8,981 or by 16 per cent., of electric motors by 1,775 or by 250 per cent., while the number of motor tractors increased by 1,983 or 12 per cent.

The largest increase is that in electric motors, showing that in England and Wales the electrification of rural areas had made great progress. This especially marked increase in electric power producers as compared with other sources of power in England and Wales is mainly due to the following reasons: firstly the electric motors are very easy to work; secondly, the supply of the electric current may be practically considered as ensured as soon as the installation is made and there is no need as with steam or fuel engines for a constantly renewed supply of the sources of power, coal, petrol, etc., and thirdly, the fact that electric motors can be obtained in every range of size and that relatively very small engines give an economic outturn of work.

Naturally a farm worked by electricity depends on the supply of current, but at the present time the farmer can, as a general rule, count on an uninterrupted supply since, owing to the linking of many generating power stations on a single system, if there is a failure anywhere, current can be supplied from another station within a few minutes.

Another very important source of power in farming and the oldest of those here discussed is the horse. Actually over the period in which there has been noted an increase in the mechanical sources of power, the number of horses fell from 1,529,000 in 1924 to 1,447,000 in 1925, later to 1,194,000 in 1931 and to 1,154,000 in 1933.

The total reduction over the period is thus one of 375,000, or 25 per cent.; the figures however are those of all horses in the country, including those used in towns, and not merely those of farm horses. In the towns the rival of the horse is now especially the motor van or lorry, and no longer the motor car.

The number of motor vans or lorries in Great Britain has shown the following development.

*Number of Motor Vans and Lorries in Great Britain.*

(Census taken on 30 November)

Years	Number	Years	Number
1924 . . . . .	210,000	1929 . . . . .	325,000
1925 . . . . .	232,000	1930 . . . . .	341,000
1926 . . . . .	257,000	1931 . . . . .	352,000
1927 . . . . .	283,000	1932 . . . . .	360,000
1928 . . . . .	301,000		

This total of motor vehicles in Great Britain has thus increased by 150,000 from 1924 to 1932, or by 71 per cent.

Apart from the technical advantages offered by the use of the motor vehicle for transport of goods purely economic reasons have had weight. .

It is unfortunately not possible to calculate the economic advantages and disadvantages with any precision, since the upkeep costs, whether of horses or of motor vans, vary greatly from stable to stable and garage to garage. To obtain some idea of the economic aspect of these changes in the general situation, it should be regarded from the agricultural standpoint. For this purpose there may be taken the price relations of wheat and butter on the one hand, as the most representative agricultural products, and on the other hand, those of coal and motor spirit.

As the tables show the position of the agricultural producer in Great Britain has deteriorated in respect of these sources of power in the years under review. Whereas in 1924 for the purchase of one ton of coal (South Wales Steam ordinary) 2.23 cwt. of wheat had to be sold, this proportion had increased in 1932 to 3.09 cwt. of wheat for one ton of coal. In 1924 for the purchase of one gallon motor spirit about 0.13 cwt. of wheat was required, but in 1932 as much as 0.25 cwt. was needed. A similar course is followed by the relations between butter prices and the sources of power mentioned: 1924 for one ton of coal, 0.12 cwt. of butter, and 0.15 in 1932; also in 1924 for 100 gallons of motor spirit 0.7 cwt. of butter, and in 1932 as much as 1.2 cwt.

No prices of electric current are available for Great Britain, and in consequence no comparison can be established between these prices, and those of farm products.

*Exchange Value of Wheat (1) in Great Britain.*

Years	Number of cwt. of wheat required to purchase'	
	one ton coal	100 gallons motor spirit No. 1.
1924. . . . .	2.23	0.13
1925. . . . .	1.89	0.12
1926. . . . .	—	0.12
1927. . . . .	1.71	0.11
1928. . . . .	1.74	0.13
1929. . . . .	1.86	0.16
1930. . . . .	2.28	0.19
1931. . . . .	3.18	0.23
1932. . . . .	3.09	0.25

For Scotland the statistics are also available for the utilisation of machines in agriculture.

(1) English wheat.

*Exchange Value of Butter in Great Britain (1).*

Years	Number of cwt of butter required to purchase	
	ton coal	one 100 gallons motor spirit No. 1.
1924 . . . . .	0.12	0.7
1925 . . . . .	0.11	0.7
1926 . . . . .	—	0.8
1927 . . . . .	0.11	0.7
1928 . . . . .	0.09	0.7
1929 . . . . .	1.10	0.8
1930 . . . . .	0.12	1.0
1931 . . . . .	0.14	1.0
1932 . . . . .	0.15	1.2

*Employment of Power Machinery in Agriculture in Scotland.*

	1925	1931
Steam engines . . . . .	401	207
Oil and petrol engines . . . . .	11.137	14.880
Electric motors . . . . .	187	421
Motor tractors:		
(a) for field operations . . . . .	1.400	1.782
(b) for stationary work . . . . .	291	670

In Scotland the number of engines worked by steam has nearly halved, while in England and Wales the reduction was by about one third only. On the other hand the increase in the number of the electric motors has not been so great as in England and Wales; it has doubled only, whereas in England and Wales the number trebled during the period under review. The number of motor tractors for field operations shows a development somewhat similar to that in England and Wales; on the other hand in Scotland the number of motor tractors for stationary work has more than doubled, while in England and Wales the increase in this group is about 20 per cent.

III. — GERMANY.

In Germany the use of mechanical power of farming is somewhat less uniform than, for example, in Great Britain. Here the three main groups of sources of power have developed from 1925 to 1933 as follows.

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(1) Danish butter in London as the leading commodity.

*Utilisation of Power Machinery in Agriculture.*

	1925	1933
Steam engines . . . . .	17,410	15,564
Electric motors . . . . .	745,553	1,169,841
Light and heavy oil engines (internal combustion engines). . . . .	42,174	73,380

In the utilisation of power machinery in Germany there is no specially well marked change to be observed in any group, but the slight decline in number of steam engines is of interest and goes to show that in German farming the preference given to electric motors and internal combustion engines does not at the same time take the form of so marked a reduction in the number of steam engines as occurs in other countries.

The development in the employment of tractors in German farming is also of interest. Statistics enable a comparison to be made from 1929 only.

*Utilisation of Tractors in German Agriculture 1929-1934 (1).*

Years	Number	Years	Number
1929 . . . . .	14,411	1932 . . . . .	16,032
1930 . . . . .	15,146	1933 . . . . .	16,695 (2)
1931 . . . . .	15,859	1934 . . . . .	17,192

The increase in the number of tractors is relatively insignificant as between 1929 and 1934, being not more than 2,781 in all, or 19 per cent. If the comparison were established instead with 1925 the result might be different, but statistical data for that year is not available.

As may be seen from the preceding table, the number of light and heavy oil engines has almost doubled as between 1925 and 1933, the increase being 31,206, the number of electric motors by 424,288, or 57 per cent., while the number of steam engines has declined by 1,846 or approximately 11 per cent.

Taking the evolution of prices of fuel from 1924 to 1933, it will be seen that the most marked fall was in prices of coal, *viz.*, from 3 Rm. for a quintal of coal in 1924 to 1.70 Rm. in 1933, or a fall of more than 40 per cent. On the other hand in 1924 the cost of 100 litres of motor spirit was 28.69 Rm. and in 1933 was 28.19 Rm., or a fall of about 1.7 per cent. Of importance in this connection for agriculture are the prices of potato spirit, which may be usefully employed in mixture with petroleum for light oil (*i. e.*, petrol) motors, and which is much in use especially

(1) Statistisches Jahrbuch des Deutschen Reiches. The figures do not agree with those of the farm census, owing to the distinction there made between tractors and motor ploughs.

(2) Actually in use.

in the East of Germany. Potato spirit cost in 1924 per hl. of alcohol 55.20 Rm. and 48.30 Rm. in 1933, a price fall of about 12 per cent. Gas oil for heavy oil motors in 1924 cost 10.90 Rm., and 9.89 Rm. in 1933 per 100 kg., and was thus cheaper by about 10 per cent. It has not been possible to ascertain the prices for industrial electric current in Germany.

The course of the prices of the leading agricultural products on the other hand has been as follows: wheat rose from 18.96 Rm. per quintal in 1924 to 19.18 Rm. in 1933, or a rise of about 1 per cent.; rye in 1924 cost 17.18 Rm. per quintal, and only 15.73 Rm. in 1933, or a fall of about 8 per cent. The price decline is very sharp in the case of butter which may be regarded as the most important of the live stock products, and the price of which reflects to a certain degree the price movement of milk. In 1924 first quality butter cost 350 89, Rm. per quintal, in 1933 only 217. 78 Rm., a fall of 133.11 Rm. per quintal or about 40 per cent.

Thus while the prices of wheat and rye have changed but little, there has been a considerable fall in the price of butter. If at the same time, we note the price movement of the fuels, petrol, potato spirit and gas oil, a slight decline in price is observed similar to that noted in the two cereals, while the price reduction of pit coal closely approximates to that of butter.

The effect of these conditions on the exchange value of wheat, rye and butter in respect of these sources of power in the years 1924 to 1933 is shown from the accompanying tables.

### *Exchange Value of Wheat in Germany*

Year	Number of quintals of wheat required to purchase		
	1 ton of coal	100 kg of imported gas oil, with preferential treatment at Hamburg	Potato spirit free on rail per 1 hl alcohol content
1924 . . . . .	1.58	0.57	2.91
1925 . . . . .	0.86	0.51	1.91
1926 . . . . .	0.80	0.45	1.92
1927 . . . . .	0.69	0.42	1.98
1928 . . . . .	0.83	0.39	2.56
1929 . . . . .	0.89	0.40	2.68
1930 . . . . .	0.78	0.42	2.42
1931 . . . . .	0.71	0.43	2.05
1932 . . . . .	0.73	0.41	2.12
1933 . . . . .	0.89	0.52	2.52

The German wheat grower in 1924 had to sell 1 58 quintals of wheat to purchase one ton of coal, in 1933 on the other hand only 0.89 quintals. With rye in 1924 the relation was 1.75 quintals for one ton of coal, in 1933 only 1.08.

*Exchange Value of Rye in Germany.*

Years	Number of quintals of rye required to purchase		
	1 ton coal	100 kg of imported gas oil with preferential treatment at Hamburg	Potato spirit free on rail per 1 hl alcohol content
1924 . . . . .	1.75	0.64	3.21
1925 . . . . .	1.00	0.59	2.23
1926 . . . . .	1.11	0.62	2.67
1927 . . . . .	0.74	0.46	2.12
1928 . . . . .	0.81	0.39	2.51
1929 . . . . .	1.03	0.44	3.09
1930 . . . . .	1.25	0.64	3.89
1931 . . . . .	0.95	0.58	2.73
1932 . . . . .	0.90	0.51	2.62
1933 . . . . .	1.08	0.63	3.07

In the case of butter, owing to the price decline being nearly similar, there was little change in the relation, in 1924 for one ton of coal 8.6 kg. of butter and 7.8 kg. in 1933.

*Exchange Value of Butter in Germany.*

Year	Number of kg of butter required to purchase		
	1 ton coal	100 kg of imported gas oil with preferential treatment at Hamburg	Potato spirit free on rail per 1 hl alcohol content
1924 . . . . .	8.6	3.10	15.73
1925 . . . . .	5.6	3.30	12.36
1926 . . . . .	6.5	3.65	15.73
1927 . . . . .	5.5	3.36	15.63
1928 . . . . .	5.6	2.65	17.28
1929 . . . . .	6.1	2.78	18.32
1930 . . . . .	7.3	2.93	22.74
1931 . . . . .	7.3	4.44	20.97
1932 . . . . .	7.6	4.28	22.13
• 1933 . . . . .	7.8	4.53	22.15

On the other hand the price relations of wheat and rye as compared with gas oil and potato spirit have not developed so favourably, although in the course of the ten years the situation was better than in either of the limiting years, 1924

and 1933. In the case of butter the situation, although improved during the intermediary years, was decidedly worse in 1933 as compared with 1924: for 100 kg. gas oil 3.10 kg. butter was required in 1924, and 4.53 kg. in 1933; for 1 hl. alcohol in potato spirit 15.73 kg. butter was required in 1924 and 22.15 kg. in 1933.

In connection with the advance in the use of power machinery in agriculture, but especially with the increase in the number of motor vehicles for transport of goods throughout Germany, the number of horses has diminished.

*Number of Horses in Germany 1924 to 1933  
(in thousands).*

Years	Number	Years	Number
1924 . . . . .	3,855	1929 . . . . .	3,617
1925 . . . . .	3,917	1930 . . . . .	3,522
1926 . . . . .	3,973	1931 . . . . .	3,451
1927 . . . . .	3,810	1932 . . . . .	3,395
1928 . . . . .	3,718	1933 . . . . .	3,397

The decline in the number of horses in Germany in these ten years amounted to about 458,000, or about 12 per cent., while the increase in numbers of motor vans or lorries in circulation may be shown as follows:

*Number of Motor Vans in Germany including electric vans  
on 1 July of each year.*

Years	Number	Years	Number
1924 . . . . .	60,269	1929 . . . . .	143,952
1925 . . . . .	80,363	1930 . . . . .	157,438
1926 . . . . .	90,029	1931 . . . . .	161,072
1927 . . . . .	100,969	1932 . . . . .	152,420
1928 . . . . .	121,765	1933 . . . . .	155,219 (1)
		1934 . . . . .	191,715

This development was largely due to the fact that this type of motor vehicle had undergone in the period under review considerable technical improvements and was more reliable and cheaper. Since in Germany the most effective competitor of the horse is the motor van and not to so great a degree the farm tractor the field of competition is mainly the town and not the open country. The reduction of the number of horses in the towns however has a certain effect on the horse-breeding on the land, as fewer purchases of horses are made in the towns. With the motor van is also found the street-tractor, the number of which have increased in Germany as follows.

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(1) Actually in use.



*Tractors (for non-agricultural purposes).*

Years	Number	Years	Number
1929 . . . . .	10,684	1932 . . . . .	10,126
1930 . . . . .	10,756	1933 . . . . .	10,884 (1)
1931 . . . . .	10,827	1934 . . . . .	14,778

From 1929 to 1933 there seems to be a stagnation in the number of tractors "for non-agricultural purposes," with a recent considerable increase from 1933 to 1934.

On the whole the use of power machinery in agriculture in Germany has greatly developed in the period under review, and moreover the price relation of the principal agricultural products to the most important sources of power has developed to some extent favourably for the farmer.

## IV. — UNITED STATES OF AMERICA.

There is little statistical information available as regards the utilisation of power machinery in the agriculture of the United States of America, and in respect of the electric motors in use the only figure is that of 386,000 for the year 1930.

An article of S. H. McCrory, Bureau of Agricultural Engineering (Year Book of Agriculture 1932) merely states that the number of farms working on electricity had been nearly quadrupled between 1923 and 1930. According to the writer the development of electrification in California was especially marked, and in 1930 from 60 to 80 per cent. of all farms were equipped with electric installations. Electrification began in California in 1899, and by 1910 electric installations were used in preference to gasoline engines, especially for the working of irrigation plant. In the other States electrification made much slower progress, since current could not be delivered from the generating centres at a price acceptable to the farmer.

Passing on to the development of the utilisation of the other sources of power in the agriculture of the United States, the following statement may be made:

*Power Machinery in United States Agriculture  
(apart from electric motors).*

	1920	1930
Steam engines . . . . .	70,000	25,000
Motor cars . . . . .	1,980,000	4,135,000
Motor-vans or lorries . . . . .	139,000	300,000
Tractors . . . . .	246,000	920,000
Stationary gas engines . . . . .	1,000,000	1,131,000

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(1) In use.

In the ten years from 1920 to 1930 the number of motor cars used on farms in the United States has practically doubled, that of motor lorries has been multiplied by five, and that of tractors by four, while there is a considerable increase to be noted in the stationary gas engines, and the number of steam engines has diminished to one-third.

In this connection it will be of interest to examine the prices for coal, gasoline (the light oil known as petrol or motor spirit in England), and electric current.

*Prices of Coal, Gasoline, and Electric Current  
in the United States of America*

1924 to 1933 (in cents, wholesale prices).

Years	Coal (1) short ton	Gasoline (2) gallon	Electric Current 100 kwh.
1924 . . . . .	421	12.2	—
1925 . . . . .	411	13.3	—
1926 . . . . .	431	12.8	—
1927 . . . . .	426	9.2	—
1928 . . . . .	403	9.9	141
1929 . . . . .	395	9.1	138
1930 . . . . .	991	7.3	143
1931 . . . . .	374	5.0	145
1932 . . . . .	364	5.7	153
1933 . . . . .	367	5.1	138

According to the above from 1924 to 1927 the price of coal rose somewhat, while on the other hand the price of gasoline fell from 12.2 to 9.2, or about 25 per cent. From 1928 the prices for coal, gasoline and electric current are comparable.

From 1928 to 1933 the price of coal fell from 4.03 cents per net ton to 3.67 cents per ton, or by about 10 per cent., the price of gasoline from 9.9 cents per gallon to 5.1 or about 50 per cent., while the price for electric current fell from 141 cents to 138 cents per kwh. only, or by about 2 per cent. In the previous year, especially in 1932, the price of electric current stood higher than in 1928.

In connection with the course of these prices for coal, gasoline and electric current respectively attention may be drawn to the changes in the utilisation of these sources of power in the United States of America.

(1) Bituminous coal, mine run.

(2) Gasoline refinery, Pennsylvania.

*Consumption of Coal and of Raw and Refined Petroleum, and  
Production of Electricity in the United States of America 1924-1935.*

Years	Coal (1) million short tons (2000 lb.)	Petroleum (2) million barrels	Electricity million kwh.
1924. . . . .	(3) 519.0	688	59,014
1925. . . . .	—	727	65,870
1926. . . . .	—	781	73,791
1927. . . . .	499.8	802	80,205
1928. . . . .	—	860	87,850
1929. . . . .	519.6	940	97,352
1930. . . . .	455.0	926	95,936
1931. . . . .	371.9	903	91,729
1932. . . . .	306.9	835	83,153
1933. . . . .	315.9	865	85,402

The decline in the consumption in coal over the period 1923 to 1933 was very marked, being from 519,000,000 to 316,000,000 net tons, *i. e.*, 203,000,000 tons or about 40 per cent., a phenomenon accompanied by the price decline of about 10 per cent. already indicated. On the other hand the consumption of petroleum (raw and refined) in the United States of America was much increased during the ten years from 688,000,000 to 865,000,000 barrels or about 25 per cent. The price of gasoline fell in the same time from 12.2 to 5.1 cents per gallon, *i. e.*, by nearly 60 per cent.

The production of electric current also rose considerably in this period, from about 59,000,000,000 kwh. in 1924 to 85,000,000,000 kwh. in 1933. If note be taken of the course of the prices of electric current and its production in the years 1931 to 1933, it is of interest to see that the price rise from 145 to 153 cents per 100 kwh. as between 1931 and 1932 corresponds with a decline in production of current from about 91,729,000,000 kwh. in 1931 to about 83,153,000,000 kwh. in 1932, and that the price decline from 153 cents in 1932 to 138 cents in 1933 per 100 kwh. corresponds to a renewed increase in production of current from about 83,153,000,000 kwh. to 85,402,000,000 kwh.

The same movement may be observed in these years with gasoline prices and the consumption in raw and refined petroleum. The price fall of the gasoline on the one hand and the increased consumption of raw and refined petroleum on the other is very marked.

Production of electric current in the United States greatly increased although prices altered very little; this is in the first instance due to the progress in the erection of electric generating and distributing centres, which always bring in new consumers, since as already noted, the simplicity of the application

(1) Bituminous coal.

(2) Petroleum raw and refined, domestic demand.

(3) 1923.

to electric plant of all kinds of this source of power confers on it a decided advantage as compared with its competitors.

The prices of the more important agricultural products over this period in the United States will now be set out, *i. e.*, the course of the purchasing power of farmer consumers as compared with the main sources of power indicated from 1924 to 1933.

This comparison will be confined to two chief agricultural products, wheat and butter, wheat as an important cereal and butter as an important live stock product.

*Prices for Wheat and Butter in the United States of America, 1924-1933.*

Years	Wheat No. 2 Red Winter, Chicago cents per bushel	Butter Creamery extra Chicago cents per pound
1924 . . . . .	128	—
1925 . . . . .	177	44
1926 . . . . .	157	43
1927 . . . . .	138	46
1928 . . . . .	154	46
1929 . . . . .	130	44
1930 . . . . .	98	35
1931 . . . . .	67	27
1932 . . . . .	53	20
1933 . . . . .	77	21

The price for No. 2 Red Winter in Chicago has accordingly fallen from 128 cents per bushel in 1924 to 77 in 1933, *i. e.*, by 51 cents per bushel or 40 per cent. Prices for butter, creamery extra, Chicago, have fallen from 44 (1925) to 21 cents, or 23 cents, or 52 per cent.

If these prices are compared with the prices of the sources of power, coal, gasoline and electricity, the following is the movement of exchange values obtained.

*Exchange Value of Wheat in United States.*

Years	1 short ton coal	Number of bushels of wheat required to purchase: 100 gallons gasoline	100 kwh. electricity
1924 . . . . .	3.29	9.53	—
1925 . . . . .	2.32	7.51	—
1926 . . . . .	2.80	8.31	—
1927 . . . . .	3.09	6.67	—
1928 . . . . .	2.62	6.43	0.99
1929 . . . . .	3.04	7.00	1.06
1930 . . . . .	3.99	7.45	1.46
1931 . . . . .	5.58	7.46	2.16
1932 . . . . .	6.87	10.75	2.89
1933 . . . . .	4.77	6.62	1.79

*Exchange Value of Butter in United States.*

Years	Number of pounds of butter required to purchase:		
	1 short ton coal	100 gallons gasoline	100 kwh. electricity
1924. . . . .	—	—	—
1925. . . . .	9.34	30.23	—
1926. . . . .	10.02	29.79	—
1927. . . . .	9.62	20.00	—
1928. . . . .	8.76	21.52	3.07
1929. . . . .	8.98	20.68	3.14
1930. . . . .	11.17	20.86	4.09
1931. . . . .	13.85	18.52	5.37
1932. . . . .	18.20	28.50	7.65
1933. . . . .	17.48	24.28	6.57

It appears from the course of the exchange value of wheat, that the value of wheat as compared with coal and electricity fell considerably between 1924 and 1932, although with fluctuations in respect of coal. On the other hand the wheat values in respect of gasoline up to 1931 improved, but in 1932 fell also very considerably. In consequence of various Government measures taken in the United States there was a slight improvement in 1933 almost equally in respect of all sources of power, but in the case of gasoline only is the position of 1924 again reached and even improved upon.

The following has been the course of the exchange value of butter: in respect of coal there is a slight improvement of the relation from 1925 to 1929, although with some fluctuations. Then up to 1932 there was marked deterioration, the value of butter in respect of coal being twice as low as in 1925, but in 1933 there was a slight recovery although the position was still highly unfavorable as compared with 1925. In relation to gasoline there was a real improvement in the position up to 1931, but afterwards in 1932 a more marked deterioration and in 1933 a marked recovery. In relation to electricity the exchange value of butter fell off markedly from 1928 to 1932, but recovered a little in 1933.

The course of gasoline prices in the 10 years from 1924 to 1933 has thus been very similar to that of the prices of both the agricultural products taken, while prices of the other sources of power declined to a much less extent. This fact may have been a factor in the competition between coal and gasoline, or between steam and gas engines, as appears from the course of the consumption of coal and petroleum and from the figures relating to power machinery as shown above.

It is to be regretted that owing to want of statistical data it is not possible to state in more detail the conditions of the utilisation of power machinery in agriculture in the United States of America.

V. — ITALY.

Great progress has been made since 1924 in the application of power machinery to Italian agriculture, and this development has received special encouragement, as will be shown later, by means of Government measures. Some survey may first be given of the increase in the use of tractors in Italian agriculture.

*Number of Tractors Employed in Agriculture in Italy  
1924-1934.*

Years	Number	Years	Number
1924 . . . . .	5,840	1930 . . . . .	24,044
1925 . . . . .	7,250	1931 . . . . .	26,542
1926 . . . . .	12,475	1932 . . . . .	28,162
1927 . . . . .	16,178	1933 . . . . .	29,611
1928 . . . . .	18,184	1934 . . . . .	30,215
1929 . . . . .	21,065		

The number of tractors utilised in Italian agriculture has thus increased by nearly five times since 1924. From 1928 the stationary petroleum engines have been reckoned separately, while up to 1928 they were included in the above figures, so that the relative rise in the number of tractors is somewhat larger than would appear from the figures.

The count of stationary petroleum engines in Italian agriculture gave the following figures:

Years	Number	Years	Number
1928 . . . . .	3,111	1932 . . . . .	11,101
1929 . . . . .	4,811	1933 . . . . .	14,669
1930 . . . . .	6,587	1934 . . . . .	16,003
1931 . . . . .	8,869		

The increase in the numbers of these stationary engines run on petroleum is thus also very marked.

The advance seems to have been substantially furthered by the Italian policy adopted in respect of prices of petroleum, which resulted in prices for treated petroleum for tractors taking the following course since 1926

From 1926 to 1934 the price in Italy of petroleum for farm purposes had fallen from 1,400 to 370 liras per 1000 kg., or by more than 75 per cent. This fact is of very great importance in regard to the purchasing power of growers of farm products in respect of this petroleum.

*Prices of Petroleum for farm use treated for impurities.*

Years	Liras per 1000 kg.	Years	Liras per 1000 kg.
1926 . . . . .	1,400	1932 . . . . .	430 (1st half year)
1927 . . . . .	778.50		402.50 (2nd half year)
1928 . . . . .	680	1933 . . . . .	402.50 (till 31 March)
1928 . . . . .	680		385 (1 April to 15 October)
1930 . . . . .	680 (1st half-year)	1934 . . . . .	370 (15 October 1933 to 31 December 1934)
	630 (2nd half-year)		
1931 . . . . .	550 (1st half year)		
	500 (2nd half year)		

From 1926 to 1933 price formation for Italian wheat was as follows:

*Price of Wheat "buono mercantile" Milan.*

Years	Liras per 100 kg.	Years	Liras per 100 kg.
1926 . . . . .	200.88	1931 . . . . .	100.85
1927 . . . . .	140.65	1932 . . . . .	109.75
1928 . . . . .	134.09	1933 . . . . .	91.45
1929 . . . . .	131.10	1934 . . . . .	86.25
1930 . . . . .	127.00		

The price of Italian wheat has not fallen so much as the price for petroleum for farm use, so that the exchange value of wheat in respect of farm petroleum in Italy has taken the following course:

*Exchange Value of Wheat as compared with Farm Petroleum in Italy  
1926-1934.*

Years	Number of quintals of wheat required to purchase 1000 kg. farm petroleum	Years	Number of quintals of wheat required to purchase 1000 kg. farm petroleum
1926 . . . . .	6.97	1931 . . . . .	5.21
1927 . . . . .	5.53	1932 . . . . .	3.77
1928 . . . . .	5.07	1933 . . . . .	4.31
1929 . . . . .	5.19	1934 . . . . .	4.29
1930 . . . . .	5.16		

According to the above calculation the Italian wheat grower in 1926 had to sell 6.97 quintals of wheat to buy kg. 1000 of petroleum for farm use, whereas in 1928 this figure fell to 5.07 and in 1932 to 3.77 quintals wheat for the same

quantity of petroleum, rising somewhat in 1933 and falling again in 1934. The saving for the wheat grower in respect of supplies of fuel oil as compared with 1926 was actually 3.20 quintals of wheat per 1000 kg. of petroleum in 1932 and 2.68 quintals in 1924.

This effective cheapening of petroleum for farm purposes has naturally done much to encourage the application of fuel oil engines of all kinds in Italian agriculture, and in the second place it has led to an increased consumption of petroleum for farm uses. Expressed in round figures the consumption of this petroleum treated for removal of impurities and for farm purposes only has been as follows in Italy from 1924 to 1934.

*Consumption of Farm Petroleum in Italy 1924-1934.*

Years	1000 quintals	Years	1000 quintals
1924 . . . . .	175	1930 . . . . .	865
1925 . . . . .	213	1931 . . . . .	785
1926 . . . . .	423	1932 . . . . .	778
1927 . . . . .	508	1933 . . . . .	843
1928 . . . . .	635	1934 . . . . .	983 (1)
1929 . . . . .	779		

There can be no doubt that the development of power machinery in Italian agriculture has received a strong impetus from the policy in regard to the price of petroleum for farm purposes. The difference in price as compared with that of petrol or motor spirit for other than agricultural purposes is quite extraordinary. In April 1935 petroleum for farm purposes cost 36 liras for 100 kg. in casks, with an additional charge for transport of 4 liras, or 40 liras in all per 100 kg., on the other hand, ordinary petrol or light motor spirit cost 281.40 liras inclusive of transport charges, or about seven times as much.

The Fascist organisation, in this case, the *Sezione Utenti Motori Agricoli* of the *Confederazione degli Agricoltori*, organises the supervision of the exclusive use of the red-coloured petroleum for farm purposes only. This body also arranges delivery contracts with the foreign mineral oil companies, the selling price being during the first few years fixed for the whole year in advance later for the half year and now from month to month. The petroleum for agricultural purposes is in Italy free from any tax or other charge.

VI.

The absence of sufficient statistical data concerning the sources of power for agriculture does not permit us to present here a more detailed survey of the advances made in this respect. The price relations between important agri-

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(1) 935,000 quintals petroleum and 48,000 quintals naphtha.



cultural products and sources of power, such as coal, motor spirit, petroleum and electric current indicate however that from country to country there are great differences in the purchasing power of growers in respect of these means of production in the period under review.

It is of interest that a price policy meeting the needs of the farmers on the market of sources of power (coal, petroleum, etc.) can exercise a great influence on the development of the utilisation of machinery, as is shown markedly in the price policy in Italy for farm petroleum.

CURT KAPPSTEIN.

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# **MONTHLY BULLETIN**

**OF**

## **AGRICULTURAL ECONOMICS AND SOCIOLOGY**

### **THE IMPORTANCE OF PIG BREEDING FOR THE PROFIT CAPACITY OF AGRICULTURE IN CERTAIN COUNTRIES OF EUROPE FROM 1927-28 TO 1931-32**

#### **II. — NORWAY, SWEDEN, FINLAND, POLAND, LITHUANIA, LATVIA AND ESTONIA**

In this article we pass on to a group of countries, including Norway, Sweden and Finland, which, as is well known, are dependent on their export trade to the United Kingdom.

In NORWAY during the period under review there has been marked development in the direction of dairying and pig breeding. The production of pigmeat rose from 76 kg. of live weight per hectare in 1927 to 78 kg. in 1928, to 82 kg. in 1929, to 105 in 1930 and to 104 kg. in 1931. Dairy production rose from 1,380 kg. of milk per hectare in 1927 to 1,425 kg. in 1929 and to 1,582 kg. in 1931. But prices of all agricultural products declined with greater or less rapidity, prices of cereals, potatoes and dairy products from 1927 onwards, and meat prices from 1928. In 1931 prices had fallen very low, and the total gross return had diminished by 518 francs per unit of area (1.64 ha.) as compared with 1927. The item in the gross return which showed least decline was that of pig breeding, the production having increased, as already stated, by 28 kg. per hectare from 1927 to 1931.

In 1930 Norway was compelled noticeably to reduce exports in fresh and condensed milk which were considerable in 1929. In 1931 there was a marked rise in these exports. On 24 June 1931 the Government enacted a law relating to the admixture of butter with all margarine sold in the country. Norway began to export increasing quantities of pigs: in 1931 there was a marked decline, and there may also be noted a very large increase in egg exports.

In 1928 and 1929 the farm expenses showed a more marked decline than the gross return, the difference in the decline was less marked in 1930 and still less in 1931, so that the net return, which followed an ascending curve up to 1929, rapidly diminished from 1929 to 1931. The most important decrease was that in agricultural wages. The farm worker who received 5.99 gold francs in 1927 for his day's work received not more than 4.38 in 1931. The price of concentrated stock feeds, after increasing in 1928, subsequently fell rapidly, or by 82 per cent. from 1928 to 1931. Norwegian farmers were thus enabled to import increased quantities of concentrated feeds, especially maize for pigs,

TABLE I. — *Increase or Decrease in the Net Return, the Gross*

Gold francs per

	Net return	Gross Return					
		Pigs	Milk and milk products	Stock breeding (slaughter beasts etc)	Cereals root crops	Other branches	Total
<b>Denmark:</b>							
1927-28 . . . . .	100	577	691	263	114	1,116	1,761
<b>Norway:</b>							
1927-28 . . . . .	+ 48	— 122	— 126	+ 67	+ 128	+ 151	— 202
1928-29 . . . . .	+ 74	— 390	— 125	+ 12	+ 112	+ 176	— 215
1929-30 . . . . .	+ 78	— 400	— 154	+ 30	+ 55	+ 133	— 336
1930-31 . . . . .	+ 6	— 423	— 163	+ 28	+ 24	+ 105	— 429
1931-32 . . . . .	— 62	— 461	— 250	— 67	+ 28	+ 30	— 720
<b>Sweden:</b>							
1927-28 . . . . .	— 62	— 534	— 330	— 103	+ 117	— 35	— 885
1928-29 . . . . .	— 29	— 529	— 321	— 102	+ 157	— 41	— 836
1929-30 . . . . .	— 49	— 496	— 328	— 116	+ 97	— 41	— 884
1930-31 . . . . .	— 71	— 514	— 395	— 126	+ 106	— 49	— 948
1931-32 . . . . .	— 118	— 535	— 426	— 152	+ 57	— 55	— 1,114
<b>Finland:</b>							
1927-28 . . . . .	— 21	— 533	— 432	— 190	7	58	— 1,220
1928-29 . . . . .	— 39	— 533	— 415	— 188	21	50	— 1,213
1929-30 . . . . .	— 47	— 532	— 446	— 194	37	60	— 1,269
1930-31 . . . . .	— 45	— 540	— 484	— 205	33	95	— 1,327
1931-32 . . . . .	— 51	— 551	— 547	— 223	17	81	— 1,449
<b>Poland:</b>							
1927-28 . . . . .	+ 92	— 496	— 593	— 119	+ 70	— 34	— 1,202
1928-29 . . . . .	+ 42	— 500	— 582	— 158	+ 62	— 26	— 1,204
1929-30 . . . . .	— 1	— 492	— 590	— 164	+ 13	— 53	— 1,286
1930-31 . . . . .	— 74	— 534	— 611	— 194	0	— 63	— 1,402
1931-32 . . . . .	— 90	— 544	— 630	— 217	24	66	— 1,481
<b>Lithuania.</b>							
1928-29 . . . . .	— 72	— 539	— 648	— 239	— 22	— 51	— 1,499
1929-30 . . . . .	— 47	— 528	— 636	— 234	34	— 64	— 1,496
1930-31 . . . . .	— 65	— 533	— 629	— 244	— 42	— 50	— 1,504
1931-32 . . . . .	— 101	— 536	— 649	— 248	— 70	— 50	— 1,553
<b>Latvia:</b>							
1927-28 . . . . .	— 70	— 539	— 600	— 236	61	— 70	— 1,506
1928-29 . . . . .	— 115	— 545	— 616	— 220	— 72	— 67	— 1,520
1929-30 . . . . .	— 60	— 542	— 604	— 221	— 70	— 47	— 1,484
1930-31 . . . . .	— 69	— 540	— 593	— 230	— 47	— 62	— 1,472
1931-32 . . . . .	— 132	— 555	— 625	— 243	— 73	— 70	— 1,572
<b>Estonia:</b>							
1927-28 . . . . .	— 68	— 541	— 618	— 224	65	— 37	— 1,485
1928-29 . . . . .	— 79	— 540	— 612	— 225	— 64	— 49	— 1,490
1929-30 . . . . .	— 82	— 537	— 610	— 228	— 70	— 49	— 1,494
1930-31 . . . . .	— 88	— 547	— 624	— 233	— 73	— 57	— 1,534
1931-32 . . . . .	— 112	— 558	— 637	— 238	— 72	— 66	— 1,571

(1) The net return of Danish farms in 1927-28 is taken as the key figure, the figures showing the gross return, farm expenses, interest on capital and cost of production in Denmark for 1927-28, in the first line for the table, form the basis of comparisons, the figures for the other years and the other countries

*Return and the Cost of Production from 1927-28 to 1931-32 (I)*  
unit of area.

Farm Expenses						Interest on capital	Cost of production
Labour	Fertilisers	Seed and forage	Taxes	Other expenses	Total		
616	68	688	64	255	1,661	268	1,929
+ 71	+ 3	— 392	— 54	+ 122	— 250	+ 186	— 64
+ 27	— 1	— 407	— 54	+ 146	— 289	+ 186	— 103
— 27	+ 1	— 444	— 55	+ 111	— 414	+ 152	— 262
— 47	— 1	— 455	— 55	+ 123	— 435	+ 140	— 295
— 157	— 22	— 493	— 56	+ 70	— 658	+ 75	— 583
— 209	— 18	— 526	— 54	— 16	— 823	— 79	— 902
— 212	— 14	— 509	— 54	— 18	— 807	— 80	— 887
— 227	— 12	— 526	— 54	— 16	— 835	— 73	— 908
— 233	— 13	— 555	— 54	— 22	— 877	— 75	— 952
— 299	— 23	— 570	— 54	— 50	— 996	— 100	— 1,096
— 364	— 35	— 613	— 54	— 133	— 1,199	— 111	— 1,310
— 350	— 40	— 599	— 53	— 132	— 1,174	— 96	— 1,270
— 373	— 41	— 623	— 56	— 129	— 1,222	— 93	— 1,315
— 401	— 49	— 639	— 58	— 135	— 1,282	— 98	— 1,380
— 471	— 55	— 653	— 59	— 160	— 1,398	— 112	— 1,540
— 411	— 48	— 648	— 55	— 132	— 1,294	— 90	— 1,384
— 399	— 43	— 651	— 53	— 100	— 1,246	— 47	— 1,293
— 420	— 49	— 663	— 53	— 100	— 1,285	— 45	— 1,330
— 435	— 58	— 664	— 54	— 117	— 1,328	— 57	— 1,385
— 462	— 62	— 673	— 54	— 140	— 1,391	— 88	— 1,479
— 480	— 54	— 664	— 57	— 172	— 1,427	— 164	— 1,591
— 489	— 54	— 677	— 56	— 173	— 1,449	— 170	— 1,619
— 491	— 55	— 667	— 56	— 170	— 1,439	— 167	— 1,606
— 481	— 60	— 679	— 57	— 175	— 1,452	— 173	— 1,625
— 467	— 55	— 665	— 58	— 191	— 1,436	— 211	— 1,647
— 473	— 59	— 659	— 60	— 154	— 1,405	— 221	— 1,626
— 478	— 53	— 666	— 60	— 167	— 1,424	— 221	— 1,645
— 472	— 54	— 667	— 59	— 151	— 1,403	— 214	— 1,617
— 486	— 55	— 676	— 59	— 164	— 1,440	— 214	— 1,654
— 461	— 61	— 661	— 59	— 175	— 1,417	— 203	— 1,620
— 461	— 61	— 660	— 59	— 170	— 1,411	— 212	— 1,623
— 462	— 60	— 664	— 60	— 166	— 1,412	— 210	— 1,622
— 482	— 63	— 673	— 60	— 168	— 1,446	— 210	— 1,656
— 498	— 63	— 675	— 60	— 163	— 1,459	— 208	— 1,667

show the difference, positive or negative, in each case All the figures refer to the conventional unit of area adopted here, viz., the area (1.64 ha.) which corresponds to a net return of 100 francs in Denmark in 1927-28.

TABLE II. — *Prices in gold francs of the chief agricultural products (\*)*.

(Data supplied by the Accountancy Offices and the International Yearbook of Agricultural Statistics)

Designation	Cereals q.	Potatoes q.	Beef kg.	Pig meat kg.	Milk litre	Butter kg.	Cheese kg.
<b>Norway:</b>							
1927-28 . . . . .	<b>36.84</b>	<b>21.83</b>	1) 2.16	1) 1.84	0.25	<b>5.07</b>	<b>3.94</b>
1928-29 . . . . .	36.07	16.65	1) 2.05	1) <b>2.18</b>	<b>0.25</b>	4.87	3.91
1929-30 . . . . .	34.61	8.35	1) <b>2.19</b>	1) <b>1.95</b>	0.23	4.53	3.65
1930-31 . . . . .	27.62	11.05	1) 2.18	1) 1.35	0.23	4.52	3.65
1931-32 . . . . .	19.03	8.33	1) 1.27	1) 1.02	0.17	2.93	2.76
<b>Sweden:</b>							
1927-28 . . . . .	31.73	19.07	2) 0.86	2) 1.27	0.23	4.15	2.13
1928-29 . . . . .	26.67	21.53	2) 0.83	2) 1.51	0.25	4.17	2.11
1929-30 . . . . .	25.53	11.20	2) 0.84	2) <b>1.57</b>	<b>0.24</b>	3.70	1.67
1930-31 . . . . .	27.21	10.11	2) 0.80	2) 0.97	<b>0.29</b>	2.98	1.63
1931-32 . . . . .	21.56	11.20	2) 0.52	2) 0.66	0.25	2.28	1.38
<b>Finland:</b>							
1927-28 . . . . .	33.32	9.14	2) 1.14	1) 1.54	0.22	4.06	2.19
1928-29 . . . . .	33.37	10.47	2) 1.19	1) 1.69	0.22	4.17	2.22
1929-30 . . . . .	27.32	9.15	2) 1.02	1) <b>1.70</b>	0.20	3.76	2.29
1930-31 . . . . .	24.18	5.85	2) 0.82	1) 1.27	0.17	3.02	2.01
1931-32 . . . . .	25.13	4.79	2) 0.50	1) 0.76	0.13	2.15	1.53
<b>Poland:</b>							
1927-28 . . . . .	29.99	5.59	2) 1.73	2) 1.19	0.17	—	—
1928-29 . . . . .	26.98	5.37	2) 1.54	2) 1.15	0.19	—	—
1929-30 . . . . .	23.76	4.14	2) 1.52	2) <b>1.38</b>	0.18	3.43	—
1930-31 . . . . .	16.29	3.41	2) 1.14	2) 0.76	0.15	2.81	—
1931-32 . . . . .	14.38	2.91	2) 0.45	2) 0.54	0.12	2.29	—
<b>Lithuania:</b>							
1929-30 . . . . .	14.58	4.05	2) 0.93	1) <b>1.66</b>	0.21	3.55	0.88
1930-31 . . . . .	8.41	1.62	2) 1.01	1) 1.57	0.19	3.10	0.75
1931-32 . . . . .	7.07	1.93	2) 0.85	1) 1.11	0.17	2.61	0.67
<b>Latvia:</b>							
1927-28 . . . . .	37 —	—	2) 0.92	1) 1.57	—	3.19	—
1928-29 . . . . .	34.10	—	2) 0.92	1) 1.68	—	3.49	—
1929-30 . . . . .	29.04	—	2) 1.30	1) <b>2.19</b>	—	3.69	—
1930-31 . . . . .	26.88	—	2) 1.38	1) 1.89	—	3.41	—
1931-32 . . . . .	12.69	—	2) 1.13	1) 1.09	—	3.18	—
<b>Estonia:</b>							
1927-28 . . . . .	30.54	5.85	2) 0.74	3) 1.22	0.21	3.74	3.39
1928-29 . . . . .	33.69	9.85	2) 0.78	3) 1.42	0.22	4.12	3.39
1929-30 . . . . .	32.56	7.57	2) 0.89	3) <b>1.58</b>	0.25	3.97	3.47
1930-31 . . . . .	28.95	4.88	2) 0.74	3) 1.32	0.21	3.07	3.44
1931-32 . . . . .	29.89	4.55	2) 0.74	3) 0.95	0.12	2.59	2.66

(1) Meat — (2) Live weight — (3) Bacon

(\*) The highest prices are shown in thick type in the table.

TABLE III. — *Production per hectare from 1927-28 to 1931-32.*

Designation		Production per ha. (1)			Gross Return (in quantities per ha) (2)					Gross Return in % of production	
		Cereals	Pota- toes	Sugar beet	Cattle live weight	Milk	Pigs live weight	Cereals	Pota- toes	Cereals	Pota- toes
		q.	q.	q.	kg.	kg.	kg.	q.	q.	%	%
Norway	1927-28 . . .	3.37	6.41	—	90	1,380	76	2.28	3.67	68	57
	1928-29 . . .	3.53	9.99	—	82	1,382	78	2.80	3.46	79	35
	1929-30 . . .	3.24	9.06	—	88	1,425	82	2.65	4.78	82	53
	1930-31 . . .	3.31	7.67	—	90	1,400	105	2.41	3.73	73	49
	1931-32 . . .	2.64	7.63	—	93	1,582	104	2.07	4.42	78	58
Sweden	1927-28 . . .	5.82	2.01	2.12	65	957	20	4.23	0.68	73	34
	1928-29 . . .	6.51	3.63	2.33	72	904	19	5.81	0.78	89	22
	1929-30 . . .	6.38	3.75	1.53	60	924	31	5.67	1.51	89	40
	1930-31 . . .	6.51	3.50	2.40	63	685	38	4.84	2.50	74	71
	1931-32 . . .	5.30	2.94	1.74	77	647	38	4.03	1.43	87	49
Finland <sup>1</sup>	1927-28 . . .	3.55	3.53	0.16	19	719	26	1.79	1.10	50	31
	1928-29 . . .	3.18	2.05	0.14	20	765	24	1.56	1.21	49	59
	1929-30 . . .	3.18	2.27	0.09	19	747	24	1.60	1.22	50	54
	1930-31 . . .	4.46	2.92	0.10	15	744	27	1.94	2.18	43	75
	1931-32 . . .	3.83	2.78	0.11	15	730	31	2.01	1.82	52	69
Poland	1927-28 . . .	4.67	10.22	1.38	15	352	41	3.42	3.45	73	34
	1928-29 . . .	5.12	10.65	1.88	15	351	41	3.66	3.51	71	33
	1929-30 . . .	5.79	12.33	1.93	14	337	38	3.76	2.43	65	20
	1930-31 . . .	5.46	11.78	1.78	11	325	35	4.13	3.66	75	31
	1931-32 . . .	5.03	11.64	1.04	16	310	38	3.21	3.36	64	29
Lithuania	1927-28 . . .	3.15	3.03	—	—	—	—	—	—	—	—
	1928-29 . . .	3.02	2.30	—	—	—	—	—	—	—	—
	1929-30 . . .	4.12	4.44	—	11	160	27	3.30	1.92	80	43
	1930-31 . . .	4.41	4.52	—	6	200	26	5.62	3.20	99	71
	1931-32 . . .	4.03	5.17	—	4	151	34	2.78	2.01	99	39
Latvia	1927-28 . . .	1.88	1.67	—	12	397	22	—	—	—	—
	1928-29 . . .	1.58	0.80	—	14	306	18	0.69	—	43	—
	1929-30 . . .	2.32	2.68	—	11	329	15	0.71	—	31	—
	1930-31 . . .	2.60	2.35	—	8	399	18	1.88	—	70	—
	1931-32 . . .	2.02	2.32	—	5	2.88	18	1.07	—	53	—
Estonia	1927-28 . . .	1.55	2.40	—	14	212	18	0.80	1.18	52	49
	1928-29 . . .	1.40	1.62	—	13	218	16	0.71	0.85	51	52
	1929-30 . . .	1.70	2.44	—	11	197	16	0.70	1.00	41	41
	1930-31 . . .	2.00	2.80	—	10	194	14	1.11	0.85	53	30
	1931-32 . . .	1.88	2.77	—	7	272	12	1.06	0.86	56	31

(1) Figures based on the data of the International Yearbook of Agricultural Statistics and referring to the area used as basis for the transformation calculations of accountancy results, such area not being the same throughout, as certain Offices include in the area forests, waters, etc., while others exclude these. In consequence the figures are not precisely comparable from one country to another.

(2) Figures based on accountancy data, and referring also for each country to an area calculated according to the usage of the Offices, as already explained under (1). In the first 3 columns are shown the quantities harvested per hectare of the area taken into consideration; in the five following columns the quantities which are components of the gross return, *viz.*, those sold or consumed by the farm household, excluding quantities transformed on the farm. This accounts for the varying difference shown.

(3) The area is estimated.



without finding their expenditure on fodder greater. Maize imports rose from 81,145 metric tons in 1929 to 135,575 in 1930, and to 199,696 in 1931 (1). Prices of building materials also fell from 1928 to 1931 in nearly the same proportions as those of concentrated feeds.

In SWEDEN the net return from farms was lower than in Norway; the decline was less marked but none the less it fell in 1931, below zero. Natural soil conditions, especially in the Skåne and in the agricultural plains of Central Sweden seem to be more favourable to cropping than in Norway. As in Denmark, agriculture in Sweden is directed towards dairy farming; with the progress of this branch of farming, there was an increasing development of pig breeding.

Beginning from 1928 a marked increase may be noted in the butter exports; in 1930, Sweden exported 26,674 tons of butter as compared with 17,545 in 1928; in 1931 however the butter exports were not more than 19,525 tons (1). As compared with 1927, there was a fall in milk production in 1930 of nearly 300 kg. per hectare; it did not recover in 1931. Prices of milk products also fell, and of all the items in the gross return dairying production was the one that showed in 1931 most decrease. In 1928 and in 1929 on the other hand with an increased production and a maintenance of prices, the gross return of this branch of farming increased as compared with 1927. Pig breeding was intensified; the exports continued to increase, and the gross return from this branch of production, in spite of the fall of prices, remained the most stable of all.

In 1931 there was a further intensification of cattle farming in Sweden, but the prices of meat continued to decrease, and the gross return shows a slow but constant fall. For all these reasons, the total gross return maintained up to 1929 the level of 1927; in 1930 it fell by 6 per cent., and in 1931 by 25 per cent.

TABLE IV. — *Labour in man-days per ha. and wages in gold francs per man-day of a farm worker (a).*

Designation	Labour in man-days					Farm wages in gold francs per man-day				
	1927-28	1928-29	1929-30	1930-31	1931-32	1927-28	1928-29	1929-30	1930-31	1931-32
Norway . . . . .	70	66	64	64	64	5 99	5 90	5 62	5 42	4 38
Sweden . . . . .	—	—	—	—	—	—	—	—	—	—
Finland . . . . .	36	38	33	42	42	4 22	4 31	4 48	3 13	2 09
Poland . . . . .	67	64	67	68	70	1 87	2 07	1 78	1 62	1 34
Lithuania . . . . .	—	31	35	34	45	—	2 65	2 19	2 22	1 82
Latvia . . . . .	25	25	25	26	28	3 57	3 42	3 38	3 39	2 82
Estonia . . . . .	27	27	27	26	27	3 55	3 56	3 47	3 17	2 69

(1) *International Yearbook of Agricultural Statistics.*

(a) Information taken from accountancy data.

TABLE V. — *Prices of Farm Requisites (index-numbers) (a).*

Designation	Chemical fertilisers	Concentrated feeds	Building Materials	Machiners and implements
<b>Norway:</b>				
1927-28 . . . . .	100	100	1) 100	—
1928-29 . . . . .	93	105	1) 119	—
1929-30 . . . . .	92	86	1) 103	—
1930-31 . . . . .	90	55	1) 58	—
1931-32 . . . . .	79	41	1) 37	—
<b>Sweden:</b>				
1927-28 . . . . .	100	100	100	100
1928-29 . . . . .	93	101	91	99
1929-30 . . . . .	90	75	88	100
1930-31 . . . . .	88	45	83	102
1931-32 . . . . .	85	47	71	97
<b>Finland:</b>				
1927-28 . . . . .	100	100	100	100
1928-29 . . . . .	104	103	96	95
1929-30 . . . . .	70	70	216	79
1930-31 . . . . .	67	56	112	77
1931-32 . . . . .	71	59	115	81
<b>Poland:</b>				
1927-28 . . . . .	100	2) 100	—	—
1928-29 . . . . .	109 5	2) 104 2	—	—
1929-30 . . . . .	126 5	2) 103 3	—	—
1930-31 . . . . .	127 5	2) 94	—	—
1931-32 . . . . .	120 2	2) 79 4	—	—
<b>Estonia.</b>				
1927-28 . . . . .	3) 100	—	—	—
1928-29 . . . . .	3) 103	—	—	—
1929-30 . . . . .	3) 85	—	—	—
1930-31 . . . . .	3) 63	—	—	—
1931-32 . . . . .	3) 74	—	—	—

1) Maize — 2) Manufactured goods — 3) — Imported commodities.

As in the other countries, the farm expenses did not fall in such a proportion, as the gross return. It is only in 1931 that the labour costs show any marked decrease and the same is the case with fertiliser costs. The expenditure for purchases of concentrated feeds begin to fall in 1930, owing to the fall in prices of these feeds. In order to intensify pig breeding Sweden increased the imports of maize from 76,833 tons in 1929 to 134,335 tons in 1930 and to 351,899 tons in 1931 (1).

(a) Information taken from International Yearbook of Agricultural Statistics.

(1) International Yearbook of Agricultural Statistics, Rome.

The most important measure taken by the Swedish Government for the protection of agriculture was the law of the spring of 1931 on the introduction of the monopoly of cereals. By this law there is accorded to the Swedish Cereal Society, an association of millers open on payment of a certain subscription to any person or association managing a mill, the exclusive right to import wheat, rye, wheat flour and rye flour, up to 31 December 1932 and to impose on these cereals a certain equalisation levy to cover expenses and losses. Another important measure is the levying of general taxes and local charges on milk and on cream. The object of this measure is to raise the prices of butter and of cheese on the home market and to equalise the prices of milk intended for direct consumption and those of industrial or manufacturing milk.

The Swedish Government has constituted funds enabling loans to be made on terms to farmers in cases where the debts exceed the value of the assets, and assistance loans to farmers having difficulty in purchasing necessary live or dead farm stock, always provided they are in a position to continue farming.

In 1931 similar measures were taken by FINLAND. A law of 30 September empowered the Government to fix at the beginning of each farming season the proportion of home grown rye and oats which must be mixed with rye and oats for the manufacture of flour.

Endeavours were also made on the part of the State to consolidate farmers' debts. Consolidation loans are granted up to 70 per cent. of the value of lands and to 30 per cent. of that of moveable property and of forests. The rate of interest charged is 7  $\frac{1}{2}$  per cent. These bonds are guaranteed by the State and are exempt for a period of ten years from State taxes on income and on property.

The harvest of 1931 was not so plentiful as that of 1930. The export of butter reached the record figure of 17,403 tons, as compared with 17,112 in 1930. Exports of meat, cheese, bacon and eggs also very considerably increased, especially the egg exports; expressed as index numbers the egg exports rose from 100 in 1927 to 224 in 1929 to 2,433 in 1930 and to 10,592 in 1931.

From 1927 to 1931 the net return fell by more than half. The gross return stood in 1928 at the same level as in 1927, then from 1928 to 1931 the fall was at an increasing rate. The gross return from pig breeding remained nearly unchanged; the increase in production compensated for the price decline. The most marked decrease appeared in the gross return from dairying; the reason for this may be found in the collapse of market prices.

Labour costs fell in 1930 and especially in 1931; wages fell. Comparable with the decrease in labour costs was that in expenditure for purchases of concentrated feeds, fertilisers and building materials taken all together in 1931, taken separately building materials rose in price in 1928, 1929 and 1930, while fertiliser prices and feed prices rose in 1928.

This comes out clearly in Tables I and V. Although the farmers benefited in a certain degree from the fall in wages and in the prices of concentrated feeds, the decrease was not enough to counterbalance entirely the effects of the fall in prices of agricultural products.

In the three countries, Norway, Sweden, Finland, as in Denmark, the situation of pig breeding remained satisfactory up to 1931, as exports could be made freely, especially to the United Kingdom markets.

The third group of countries includes Poland, Lithuania, Latvia and Estonia.

The earning capacity of agriculture in POLAND was excellent in 1927 and in 1928. Expenditure for purchases of fertilisers and other current expenses increased in 1928, following the movement of prices of fertilisers and manufactured commodities; in 1929 however these costs reverted to the 1927 level. In 1929 the gross return diminished, although the gross return from pig breeding and that from dairying did not fall; prices remained high or even showed a rise. In 1930 it was mainly the fall in milk prices which brought about the decrease in the gross return of dairying production in that year. Pig breeding is an important branch of Polish agriculture; the importation of porkers is seen to be rapidly growing in the years under review. The export of pigs was at its highest point in 1928 and by 1930 was reduced by 34 per cent. On the other hand, there must be noted in 1931 the increase in the bacon exports. The number of pigs slaughtered for bacon was 116,000 in 1928 and 1,000,000 in 1931. In 1929 the prices of pigs rose in consequence of the favourable market conditions of 1928; but in 1930 there was great pressure of stocks in Poland; pig prices showed an abrupt fall; from 1929 to 1930, the gross return from pig breeding was much reduced; Poland increased cereal exports, but at constantly lower prices which affected the gross return. Weather conditions were unfavourable in 1930 and in the summer of 1931 the winter crops suffered and to some extent the root crops.

Summarising, the gross return showed a general reduction in 1930-31, the prices of all farm products fell. Farm expenses did not fall in the same proportion and the net return showed a sharp fall. This was still more apparent in 1931-32, and the gross return continued, as in all countries so far reviewed, to decrease in a greater degree than the farm expenses. The gross returns which since 1927 have fallen to the greatest extent are those from cereals and root crops and that of cattle breeding. The decreases in the gross return of dairying and pig breeding are much less marked.

Taking farm expenses, since 1930 Polish farmers have reduced their fertiliser purchases by nearly one half; the expenditure for these purchases however did not diminish, as the prices tended to rise. Nor did labour costs fall, although wages were lower there was an increase in the number of work days per hectare.

Polish agriculture has become less intensive; fertiliser consumption diminished in 1931 by 71 per cent. and orders for farm machines by 97 per cent.

Close attention has been given by the Government to the future of agriculture in the country. Import and export premiums have been increased. By these measures efforts have been made to develop animal production: bacon, fats, meat and meat products. A decree was made regulating the production of bacon in Poland; by another decree the trade in fertilisers was further regul-

ated. Measures were also taken for remedying the financial position of agriculture. It was a question of opposing ill-considered measures of distraint directed against the farmers, especially in respect of short term debts; of suspending distraint on standing crops; of protecting farmers, whose resources had been weakened by the crisis, against ill will and usury. The conversion of debts was even under consideration.

It has been noted that the fall in prices of agricultural products was more marked than that of industrial products. The consequence of this has been the increase in the indebtedness of the farmers, which from 4,000,000,000 zlotys on 1 January 1931 rose to 4,600,000,000 on 1 November 1932.

In LITHUANIA, the net return strengthened in 1929-30, the gross return remaining the same, and farm expenses decreasing somewhat especially in respect of the expenditure on purchases of concentrated stock feeds.

In 1930-31 cattle production decreased and beef prices fell. The gross return from cropping also decreased, as prices of cereals and other field crops fell. Farm expenses were higher than in the previous year; expenditure for fodder purchases increased, as well as the expenditure on manufactured commodities. The net return lost the advance made in 1929-30.

In 1931-32 the net return fell below zero. There was an evident decrease in the net return of cattle breeding and in that for cereals and root crops, as a result of the poor rye harvests and to partial failure of the winter wheat and clover, and also of the fall in prices. Farm expenses were somewhat lower. Labour costs increased, although wages had fallen, since a larger number of persons were working on the farms. On the other hand, the expenditure for fodder purchases and current expenses somewhat diminished.

The net return from pig breeding, from 1928-29 to 1931-32, remained at the same level. Production and export of bacon were on so large a scale that Lithuania became one of the chief bacon suppliers on the British market, where in 1931 it took the fifth place among bacon exporters, viz., after Denmark, Poland, the Netherlands and Sweden. At the end of 1931, the Lithuanian export was exceeded only by that of Denmark. The price fall in no way checked production which made great progress.

It may be noted that the indebtedness of the farmers increased in 1931. At the end of the year, the total indebtedness of the Lithuanian farmers was 200,000,000 litas, or from 40 to 50 litas per hectare of cultivated land.

In LATVIA, the farming season of 1928-29 was characterised by a depression; the net return fell below zero. In this year as in the preceding there were crop shortages, with the consequence that cereal imports increased by 55 per cent. in 1928 and by 146 per cent. in 1929. While cereal prices remained high in 1928, farm expenses slightly increased. As a further consequence of the crop shortages, apart from the gross return of the cropping, the aggregate gross return will be seen to diminish, with the result that there is a decrease in the net return.

In 1929 the harvests were once more very plentiful. Cereal imports were reduced by one half, labour costs decreased somewhat, as well as general expenses, so that farm expenses were lower than those of the two previous years.

In consequence of the poor harvests, dairying production decreased in comparison with that of 1927, *viz.*, by 23 per cent. in 1928 and by 17 per cent. in 1929. Pig production declined progressively from 1927 to 1929; a significant fact was that the Government imposed an import quota. In 1929, prices firmed and the gross return from this branch was higher. On the cattle market, supply was stronger than demand; production fell from 1927 to 1930; the price level remained constant. This branch of production is of small importance; the height of the aggregate gross return depends on the success of the dairying industry and of pig breeding, as well on that of crops. For Latvia 1929 was one of the best farming seasons experienced since 1927.

The year 1930 was equally a good season, and the harvests were very abundant. Although farm expenses rose — labour and building materials being dearer than in 1929 — the gross return was higher than that of 1929, and the net return showed only a very small decrease. Dairying production gave a high gross return; pig production increased, and pig prices did not decline. Stock breeding and cropping alike showed good returns.

In 1931 the net return again fell below zero. It may be noted that farm expenses, although increasing, scarcely exceeded the level maintained in 1927. A larger number of workers were employed on the farms, but labour was cheaper; there was no variation in the other expenses, except in respect of purchases of farm materials and implements and of general expenses.

On the side of the gross return however it was quite otherwise. The production of cattle had declined markedly, and the small farmer had turned to pig breeding. Pig production and export were greatly increased but prices had declined and the gross return of this branch of farming could not be maintained. Less milk was produced, and of all the gross returns, that of dairying showed the most decline. Cereal prices fell by half from 1930 to 1931, in spite of the law of 31 July 1930, by the terms of which the Government buys from growers, through the intermediary of the communal administrations of each district area, rye and wheat for breadmaking, at prices fixed in advance. In accordance with this law the free importing of rye and wheat has come to an end. The quantities of home grown rye and wheat which must enter into the manufacture of flour were fixed by a ordinance. A stable price was also assured with the support of the Government to beet growers. The Latvian Government which holds the monopoly of the manufacture of brandy fixed the prices on the basis of the purchase prices of potatoes also fixed by the law. The Saēima, or Parliament, adopted a special law guaranteeing stable prices for butter and pigmeat. It will be of interest to see what will have been gained by these measures in 1932. To avoid the sale by auction of agricultural estates, which might be the result of the complete inability of the small farmers to pay interest on their debts, the Government passed a law. Short term credits were converted into long term credits. This is a question which has attracted the attention of the Government in a number of countries.

In ESTONIA, the situation in regard to profit capacity of agriculture did not change from 1927 to 1929. Gross return, farm expenses and net return remained as before.

In 1930-31, there was a slight diminution in dairying production and a perceptible one in prices of dairy products. Fortunately, the butter export trade expanded and the gross return of dairying production did not undergo a fall proportional to that of the prices and production of milk and derivatives. On the pig market, prices were maintained above the level of those ruling in 1927. In 1930 however the number of pigs fattened in Estonia was 22 per cent. the total fattened in 1927; the export ceased. Cattle production diminished also by 29 per cent., export of cattle by 90 per cent. This branch of exports, as in Latvia, has little importance. On the other hand cereal-growing has considerable importance. Cereal prices, after becoming firmer in 1928, dropped by 26 per cent. in 1930. Fortunately the harvest was abundant. The gross returns from other field crops, including flax, fell by 6.7 per cent. Taking it all round, it is due to the sale of dairy products that the total gross return fell in 1930 by 18 per cent. only, as compared with 1927.

Farm expenses, among them labour costs and the expenditure for fodder purchases, fell also in 1930-31 but in a less degree than the gross return. The net return was falling towards zero.

There was a still further decrease in 1931-32 in the farm expenses (including as in 1930 labour costs and purchases of fodder), but the decrease was less in proportion than that of the gross return, and this time the net return actually fell below zero. As in many other countries the cost of the day's work and the price of concentrated feeds fell.

The gross return from cattle farming diminished after 1930 only to a slight degree: prices were maintained. Production of meat somewhat declined. On the other hand dairying production greatly increased, and the export of dairy products did not slacken. Prices of dairy products however collapsed and the gross return from dairying fell off.

Estonia began to export pigs on a large scale; in index numbers pig export rose from 100 in 1927 to 188 in 1928, to 214 in 1929, fell to 7 in 1930 and rose to 2208 in 1931. This export has largely counterbalanced the price fall, for the gross return of pig breeding fell less considerably than that of dairying production. The gross return of "other branches" (including flax) fell alone to nearly the extent of all the other gross returns put together.

In 1931, the Estonian Government also took measures for relief of the farming class. A law of 10 November 1931 empowered the farmers to convert their short term debts, up to 60 per cent. of the value of the property in land, into long term credits at a lower rate, a part of the interest — two per cent. — being paid by the State. By the law of 19 December 1931 the tax on real property is reduced by 20 per cent. The rye monopoly was retained; the importation of other agricultural products was checked either by means of increase in import dues or by restrictions on volume of imports. The control of exports by the State was strengthened and the rates for transport of the products were reduced. The difference between the prices of products sold and those of commodities purchased by the farmers amounted in 1931-32 to 23.5 per cent. The weighted index of farmers' purchasing power, which was 99 in 1929 fell to 91 in 1930 and to 77 in 1931.

Before passing on, in succeeding articles, to the study of the importance of pig fattening for the earning capacity of farms in the different regions, of farms belonging to different systems of production and to different size classes in the countries under review, the striking features of the agricultural development of these countries may be summarised briefly in respect of 1931, the moment at which the crisis really began to be felt.

In Denmark in 1931 there was a contraction of the production of beef, milk and bacon, egg production was increased and increasing attention was given to sheep farming and to products for which there was more demand than before;

in Overijssel (Netherlands) the production of milk and eggs which could more easily be marketed was developed and there was of some abandonment of stock breeding;

in Switzerland the production of beef was diminished, while that of pig meat and milk was maintained, and there was a tendency to increase cereal and root crop cultivation with State assistance;

in Germany, in Austria and in Estonia, increased attention was given to production of milk and to pig fattening; in Germany the consumption of pig meat increased;

in Norway, the production of beef, milk, pig meat and eggs was intensified, exports being mainly directed towards the United Kingdom;

in Sweden and in Poland farming is directed towards the production of beef and pig meat. Sweden closed the frontier to cattle imports. The British market absorbed a great part of Swedish production of pigs. Poland was able to market pig breeding products in the industrial countries and on the Vienna market. An embargo was placed on import of pigs from abroad;

in Finland, in Lithuania and in Latvia pig breeding became of great importance and also egg production. In both cases the products found a ready market in the United Kingdom.

Wherever there has been a fall in the net return from 1927 to 1931, wages and prices of farm requisites have decreased to a less extent than prices of agricultural products. This is a general phenomenon.

In countries where export facilities have not been great, the production of pig meat has been encouraged by tariffs. The demand in the country has thus come to exceed the supply. This holds good of other important agricultural products.

Neither the marketing facilities for agricultural products, or at least for certain of them, nor the protection afforded by the Governments to the agricultural products which were considered to be the most important, could prevent the effects of the crisis being felt. There has been a shrinkage of the net return, as well as of those other values which depend on the net return, *viz.*, the farming family capital return, the family farm income, the social income, the family labour earnings, none of which have been considered in this enquiry. It even happens that the net return is negative and that the farmer must draw on his family capital to pay the interest on his debts.

In 1931-32 a diminution has been noted in the countries under review of the agricultural products which those countries produce by preference: pig meat in



Denmark, dairy products in Switzerland, cattle in the Netherlands, etc. When we come to examine the results of the farming season of 1932-33, it will be seen that Denmark made an arrangement with the United Kingdom to reduce exports and to take measures to curtail production, and, in 1933, to sell 285,000 tons of bacon only as compared with 384,000 in 1932; that the Swiss Federal Government took measures in 1932 to regulate, improve and contract milk and animal production, to place duties on imported concentrated feeds with the object of lowering consumption and thus, as a consequence, to reduce milk production; that the Netherlands amended the crisis law on imports, entered into negotiations with the countries with which agreements existed, and endeavoured to adapt the production of milk and meat to the export possibilities.

Enough has been said to show the importance for economic enquiries of the figures given by farm accountancy. Their utility will be greatly increased when it is possible to supplement them by the data of the agricultural census and by more far-reaching statistical data.

(To be continued).

J. DESLIARZES.

## AGRICULTURAL CO-OPERATION IN SWEDEN

### INTRODUCTION.

The co-operative movement in agriculture, in the modern sense of the word, has been in existence in Sweden since the end of the last century: the earliest co-operative dairies and associations for sale of eggs were established towards 1880, the first co-operative associations for purchase of farm requisites about 1890 and the first co-operative slaughterhouse at the end of the century. On the other hand, with the exception of the national organisation of associations for the purchase of farm requisites, the need for forming central organisations for the whole country for the various types of agricultural co-operative societies was realised in farming circles only in the course of the last years of the crisis, under the pressure of the increasingly difficult economic situation of agriculture. Great success has however attended the endeavours to constitute these central organisations and to increase the membership, and in the space of a few years it has been possible to record results of far more importance than had been obtained previously in the course of decades. There are accordingly good grounds for speaking of a true popular movement in favour of co-operation among the rural population. New national organisations have been set up one after another: in 1932 there were founded the *Svenska Mejeriernas Riksförening* (National Union of Swedish Dairies), *Svenska Ägghandelsförbundet* (Swedish Federation for Egg Marketing), *Skogsägareföreningarnas Riksförbund* (National Federation of Associations of Forest Owners), in 1933 the *Sveriges Slakteriförbund* (Federation of Slaughterhouses of Sweden), in 1934 the *Riksförbundet Svensk Frukt*

(National Federation of Swedish Fruit Growers). In addition, in 1930 a decision of the *Riksdag*, passed at the time of the reorganisation of the activity of the agricultural credit institutions, set up a central organisation for the whole country, the *Svenska Jordbrukskreditkassan* (Agricultural Co-operative Credit Bank of Sweden).

The work of establishment and of reorganisation has been directed by the *Sveriges Allmänna Lantbrukssällskap* (General Agricultural Society of Sweden), founded in 1917. This Society may, since the recent reform of the terms of its constitution, be considered as the leading organisation of the agricultural co-operative movement in Sweden, since its main components are the seven large central agricultural co-operative organisations which are affiliated with it, the remaining members being rural economy societies and individual farmers. The main function of the society is to encourage co-operation in agriculture by every possible means, by education, by inspection and audit, etc. Among other important functions of the Society there should be mentioned the publication of market information, price quotations, establishment of accountancy returns and of business analyses for the Swedish farms, etc.

As will later appear, the agricultural co-operative societies and the consumers' societies in Sweden have established a valuable collaboration from several points of view. There is still however room for a permanent organisation, common to these two types of co-operation and capable of handling the various questions which concern them both; such an organisation will be very probably formed within measurable time.

## I. — THE LEGAL BASIS OF CO-OPERATIVE ORGANISATIONS.

The Swedish law at present in force on the constitution of co-operative associations and their activity, *viz.*, the *Lagen om ekonomiska föreningar* (law on associations for economic purposes), dates from 22 June 1911 and contains a complete revision of the previous law of 1895 on the same subject.

The provisions of the law of 22 June 1911 apply to all associations the object of which is the promotion of the economic interests of their members by obtaining necessities of life or other commodities for them, selling the products of their activities, building their houses, or finding capital for them (1) or exercising any other activity of an economic character.

The provisions of the law apply equally to any association which, while carrying on commercial or other activity making it necessary to keep trading books, has also some further purpose than that of promoting the economic interests of their members. The law is however not applicable to savings banks nor to sick insurance, to mutual insurance associations or other insurance societies,

(1) Further provisions have been enacted relating to agricultural credit banks formed for the purpose of obtaining working capital for farmers.

nor to societies the object of which is to make loans on a guarantee of mortgage of real property.

The trading name of an economic association must include the word *association* (*förening*), but it must not contain the word *company* or any other term which would lead to confusion or give the idea that the name is really that of a company.

To customers other than its own members an economic association can make cash sales only. This restriction however does not apply to associations which conduct sales with purchasers other than their own members mainly relating to products of the activity of the members or of the association itself. Nor does it apply to associations the object of which is to purchase and sell farm requisites.

The obligations of an economic association are guaranteed by its resources, including all charges due and not paid and any other contributions. Members have the right to assume in addition however, according to the provisions of the law, a personal liability limited to a certain amount, relating to the obligations of the association. In this case the trading name must contain the words "with personal limited liability" (indicated in Swedish by the initials, m. b. p. a.). For associations, where the members' personal liability is not engaged, the words "without personal liability" should be added, i. e., in Swedish, *utan personlig ansvarighet*, or abbreviated, u. p. a.

For the founding of an economic association, five persons at least must subscribe to the rules, which must be in accordance with the law, and it is their duty to select persons to act on the body administering the association.

An economic association only acquires the status of a corporate body through the formality of registration which is obtained by a request to the prefecture of the province in which are situated the headquarters. A non-registered association cannot acquire rights nor assume obligations, nor appear in court or plead before tribunals and other authorities. If the members of any body administering an association, the members of the association, or other persons, act in the name of the association before it has been registered, all those who have taken part in such action, or who have acquiesced in it, make themselves liable for the resulting obligations, as for a personal debt.

The law grants a fairly free hand to the economic associations in regard to the drafting of their rules and merely requires that there be indicated:

- (1) the trading name of the association;
- (2) the object of its activities;
- (3) the headquarters of the administration;
- (4) the share subscription of each member and the manner of making the payments, and whether the members are expected to hold more than one share in the association;
- (5) in the case of further contributions, whether ordinary or following on a special decision, the total of these or the sum which they may reach;
- (6) in the case in which the obligations are not guaranteed by the resources of the association only, the total of the sum guaranteed by the members on their personal liability;

(7) the sum which will be withdrawn from the annual profits to be paid into the reserve funds, and in the case in which the reserve fund is limited to a certain sum, the figure which it must reach for the charges on the annual profits to cease;

(8) the number of members forming the administration and the period for which they hold office;

(9) the method of control exercised by the administrative body;

(10) the date or dates of the establishment of the balance sheet and whether effected yearly or more frequently;

(11) the number of ordinary meetings;

(12) the method of summoning the meetings and the method in accordance with which other communications will be made to members as well as the time which must elapse between the calling and the holding of a meeting.

An association may accept new members at any time and the approval of their admission rests with the Committee of Administration unless the rules provide otherwise. Applications for admission as well as notice of resignations must be made in writing and signed by the applicant.

As regards the right of members to receive on resignation the shares paid up by themselves, there is nothing to prevent the insertion in the rules of a clause to the effect that these will not be repaid or that they will be repaid only when the finances of the association permit. It is only in the event of the member withdrawing from the association for the reason that a personal liability for its obligations has been introduced, or in similar cases, that he is enabled, apart from any restriction contained in the rules, to regain possession of the share subscriptions paid up.

The general meeting of an association may be ordinary, when it deals with business of a kind recurring each year, or extraordinary, when it is called by the Council of Administration at its discretion for dealing with affairs that do not come before ordinary general meetings or which do not admit of delay. An extraordinary general meeting may also be demanded by the auditors or by at least one tenth of the members, and the rules may even make provision for a proportion less than one tenth for the calling of an extraordinary general meeting. If in spite of a request made in proper form, the Council fails to convene a general extraordinary meeting, it may be convened by the public authorities on the request of the members.

The general meeting of the association elects the Council of Administration as well as the auditors, in accordance with the number prescribed by the rules. These offices cannot be held for more than two years, but retiring officers may be re-elected. Provision may however be made in the rules that the Council as well as the auditors, either *in toto* or partially, may be chosen in some other way than by election by the general meeting.

The Council of Administration represents the association in all its contracts and in all the operations or business effected on its account. Limitations may be imposed on this authority but cannot be registered and remain inoperative as regards third parties who have no knowledge of the same. Certain limitations are however found in the law in respect of the rights of the Council or

of officers to represent the association and of their power to sell or to mortgage the real property of the association, unless expressly empowered to do so by the general meeting or unless such rights are conferred on them by the rules.

Other prescriptions are contained in the law relating to the functions of the Council of Administration and of the auditors, prescriptions which however apply only in the cases in which there is no other ruling.

Amendments to the rules are the prerogative of the general meeting, and can be passed only if the members present are unanimous, or, in the event of opposition, by two consecutive general meetings, of which the one must be an ordinary meeting; and on the further condition that at the second meeting the amendment obtains at least two thirds of the votes of the members present and voting. When the case is one of certain important modifications to be made to the rules, *e. g.*, the increase of the personal liability for the obligations of the association, or the limitation of the right of the members to the assets of the association at the time of its liquidation, provision may be made for a larger majority.

The procedure for liquidation and dissolution of an association is set out in detail in the law. Compulsory liquidation takes place when the membership falls below five, provided that the numbers are not once more raised within the space of three months. The rules may prescribe that when certain conditions occur, the association must cease functioning. Finally if the association has no competent registered Council, the members may request the public authorities to declare that the association should proceed to liquidation.

The question of voluntary liquidation may be decided by the general meeting of the association, on condition that all the members present are unanimous; otherwise the proposal must be adopted by two general meetings, and at the last by at least two thirds of the members present and voting.

## 2. — CO-OPERATIVE ORGANISATIONS FOR THE PURCHASE OF FARM REQUISITES AND FOR THE SALE OF CEREALS AND SEEDS.

As already stated, the first local organisations for the joint purchase of farming requisites were established in Sweden in the closing decade of last century. The organisation per province of these local associations began in 1895 and during several years from the beginning of this century associations of this kind (Central Associations) were formed throughout the country. A national organisation common to all the central associations, the *Svenska Lantämnens Riksförbund* (National Federation of Swedish Farmers) was already constituted in 1904. The rapid development of the movement continued even during the world war, but it had subsequently to weather two very serious crises: that of 1921-23 when large capital sums were lost in the subsidiary undertakings built up by the Federation during the war, and that of 1930-32, when the difficult general conditions of agriculture and the marked decline of the prices of products sold by the Federation involved it in heavy losses. After a process of regeneration

effected with State support and a transformation of the organisation of local associations as well as a reconstruction of the central associations, the movement has not only surmounted the consequences of these crises but has succeeded in recording some important successes, in the course of the last few financial years.

At the present time the Federation includes 20 provincial organisations or central associations, in which are grouped about 700 local associations; all these, the Federation, the local and central organisations alike, have the character of economic associations without personal liability.

In this way some 36,000 members of the farming class are directly linked with the whole organisation. In addition about 60,000 more do business with the associations; in consequence the clientèle includes nearly 100,000 farmers, holding about 1,000,000 hectares of cultivated land, or one fourth of the cultivated area of Sweden. The average per member of the cultivated area is about 14 hectares, showing that the small holders and those of medium-sized farms are the chief supporters of the co-operative movement.

*The Local Associations.* — Membership is open to any farmer on payment of a share generally fixed at 10 crowns for each hectares of land cultivated by him within the area served by the association. A part of this payment is made in cash and the remainder by a bill of exchange in favour of the association with yearly amortisation of at least one fifth. The association may also resolve to impose an annual contribution which must not however exceed 5 crowns per year and per member.

Every member is expected to obtain from the association all his requirements in commodities stocked by the association (feeds, fertilisers, oils, tiles for pipes, twine for harvesting, various technical preparations, etc.). Any member who without special authorisation from the management buys any such commodities elsewhere shall pay to the association as compensation 10 per cent. of the value of the commodities so bought. No member may withdraw from the association till five years have elapsed since his admission, unless he gives up farming his land, in which case resignation may take place two years after admission.

A Committee of Management elected by the general meeting for a period of two years is responsible for the management of the affairs of the association. At the general meeting every member is entitled to one vote per share held by him. He cannot however record votes amounting to more than one fifth of the shares represented at the general meeting and in no case for more than one tenth of all the shares paid up to the association.

In accordance with the terms of constitution there will be transferred to the reserve fund 15 per cent. of the annual profit, and 3 per cent. of the education fund. Out of the remaining sums, the members will obtain a maximum interest of five per cent. on their shares, after which the balance is distributed among them in proportion to the value of the commodities purchased by each of them from the association in the course of the year. No profit nor interest, however, will be paid to a member before he has fully paid up his shares. When the reserve

fund has reached twice the amount of the shares, the general meeting of the association will be able to decide if further allocations to the fund should be effected.

*The Central Associations.* — Membership is open to local associations of the kind mentioned above belonging to the sphere of activity of the central association, as well as to persons and societies cultivating the land situated in the same area. In many regions of Sweden there are no local associations and the farmers are directly attached to the central association.

Every private member takes part in the association by means of a share of 10 crowns for each hectare of land cultivated by him, every local association by the same sum for each hectare of land cultivated by its members in the sphere of activity of the central association, with however a minimum of two shares. In respect of the part of the shares which has not been paid in cash, a bond will be issued which must be amortised by one fifth at least each year, either in cash or by transfer of the interest or profits accruing to each member.

As security for the bond which is issued by a local association, such association is required to give as security bonds in respect of shares not fully paid up by its members for an amount equal to the bond of the local association.

The central association has the right whenever the Council of Management deems necessary to inspect the administrative activities and the accounts of the local affiliated associations.

As regards the obligation on the part of members to purchase farm requisites, their withdrawal from the central association, repayment of their shares at the time of withdrawal, the same rules apply as in the case of the members of the local associations. At the general meeting of the association which, *inter alia*, appoints the Council of Management which consists of five members, each member has one vote in respect of each of his shares, but no member has the right to more than one fifth of the total number of votes corresponding to the shares represented at the meeting.

At least fifteen per cent. of any profits will, in accordance with the terms of constitution, be allotted to the reserve fund, three per cent. to the general purposes fund and two per cent. to the education fund. Out of the balance members will in the first place receive a maximum of five per cent. for the shares for which cash has been paid, and after this any balance will be divided among the members in proportion to the value of the purchases made by each member from the association during the year. No profit nor interest, however, shall be paid to any member before his shares are fully paid up. When the reserve fund has reached twice the amount of the shares, it is for the general meeting to decide as to the amount of the transfer to this fund.

The central associations during the working year 1 July 1933 to 30 June 1934 showed a total turnover of over 53,600,000 crowns of which about 41 per cent. relate to transactions in cereals, about 29 per cent. to feeds, about 22 per cent. to fertilisers, about 4 per cent. to seeds, and also about 4 per cent. to miscellaneous commodities. At the present time from one fourth to one third of the

total purchases as above in Swedish agriculture are handled by the Central Associations. A constantly increasing amount of the purchases effected by the Central Associations tends to be carried out by the National Federation of Swedish Farmers; this is also true of cereals and other commodities which the central associations are under no obligation to purchase.

The Central Associations from the outset of their activities also undertook to market the farm products of their members, especially cereals; this branch of the movement has been the one that has showed the most rapid advance during recent years. During the financial year 1933-34 the sale of cereals on behalf of members alone represented, as already stated, 41 per cent. of the aggregate turnover of the central associations. These associations also own large grain warehousing premises, with a storage capacity of 1,200,000 quintals.

The function of the *National Federation of Swedish Farmers* is, in common with the central associations, to make purchases, on behalf of its members, and as a rule on commission, of farm requisites, and to act as their agent for the sale of their farm products.

Every trading association registered pursuing objects similar to those of the Federation is eligible for membership. Every member must take one share of 10 crowns, payable in cash at the time of joining the Federation, as well as a supplementary payment of 1,000 crowns for each 100,000 crowns in the turnover of the association in excess of 100,000 crowns. Two-fifths of these latter payments are made in cash, the balance is covered by a bond, which is amortised by the profits to the member association.

Although the central associations are independent bodies, fully responsible for their own business management and administration, they are to a certain degree under the supervision of the Federation. This body has the right in conformity with its terms of constitution to inspect the administrative activities and the accounts of the affiliated associations, as also to lay down rules for securing an effective check and uniform methods in the accountancy, rules which the associations are bound to observe. Every affiliated association must in addition, at the time of the appointment of the trade superintendent, submit its recommendation to the Council of Management of the Federation, which has the right to approve it or otherwise.

Every member is bound to meet, through the medium of the Federation and so far as the Council of Management does not grant exceptions, all his requirements in phosphatic, nitrogenous and potassic fertilisers, in imported stock feeds and in Swedish cake, mixed fodders and other fodder products supplied from Swedish oil mills. The Federation takes a commission of five per cent. as agency charges. The Federation allows a credit for three months for seeds and fodders, and of six months for fertilisers, but if payment is made within a month, a rebate is granted. Any member who does not purchase the products listed above from the Federation is required to make a compensating payment thereto equivalent to ten per cent. of the value of the goods purchased elsewhere. If the purchase has been made with the consent of the Federation, the member is required to pay one per cent. of the value of the commodities by way of commission.



No member may withdraw from the Federation until the expiry of five years from date of admission. As regards the repayment, on the occasion of resignation, of the paid up shares, the rules established by the law on the trading associations already quoted hold good.

The business of the Federation is handled by the Council of Management consisting of seven members elected by the general meeting.

The Council if considered advisable appoints an Executive Committee and if necessary, a member with executive functions. Each affiliated association is entitled to a vote in the general meeting for each share held, but no member will have a right to more than one fifth of the total number of votes corresponding to the number of shares represented at the meeting.

As regards the distribution of profits, if any, and the allocations to the reserve fund, the provisions in force for the Central Association shall apply. During the financial year from 1 July 1933 to 30 June 1934, the aggregate turnover of the Federation amounted to 31,600,000 crowns, and the volume of commodities sold to 3,020,000 quintals. The turnover for fertilisers was 10,800,000 crowns, for feeds 8,300,000, for cereals 5,900,000, and for seeds and other requisites about 600,000 crowns.

The following table supplies further details of the turnover of the Federation during the period 1930-34.

*Turnover of the National Federation.*

Period	Turnover					
	in crowns	in %				
		Fertilisers	Feeds	Cereals	Seeds	Other commodities
Calendar Year 1930 . .	17,202,569	55.77	35.35	5.76	3.03	0.09
"    "    1931 . .	20,089,566	39.01	46.91	11.79	2.19	0.10
Financial " 1932-33 .	25,631,172	42.10	32.47	23.20	1.41	0.82
"    "    1933-34 .	31,604,926	36.13	32.41	26.76	1.52	1.20

A very close collaboration in many directions of special importance to farmers by the Federation with the *Kooperativa Förbundet* (Union of Swedish Co-operative Consumers' Societies) *e. g.*, the Federation has leased from the *Kooperativa Förbundet* a superphosphate factory in the neighbourhood of Stockholm. The Federation does not actually administer this factory directly but has let it to the company which owns the four other superphosphate factories in Sweden. This lease is however granted on conditions that prevent the company from making any attempts to effect a price monopoly and which offer to the two great co-operative organisations the means of effective control over price fixing. The result of this action has been to bring about a reduction in the prices of superphosphate, involving a total saving even in the first year of several million crowns by the farmers on their purchases of chemical fertilisers. The collaboration

between these two bodies in this connection has also brought advantages to the Swedish farmer in other directions. As a result these two organisations have been successful in bringing influence to bear on the Franco-German potash syndicate with the result that the syndicate has been obliged to allow lower prices to the Swedish farmers for the potash supplied to them.

The Union of Consumers' Co-operative Societies and the Federation have in addition combined to establish the "Syrafoder" association for the purpose of the joint exploitation of the concession that they have purchased of behalf of Sweden of the famous process for the preservation of green fodder discovered by the Finnish professor, A. J. VIRTANEN, whereby the original proteins contained in the fodders remain unaltered. The two bodies have organised training courses for instructors in the practical application of the process and have provided the equipment required through the co-operative societies for purchase and supply of requisites. In addition the Union of Consumers' Co-operative Societies and the Federation have jointly established a company known as the *Andelskalk*, which has leased a large chalk pit belonging to the State and sells the products to farmers through the co-operative agricultural purchasing societies (1).

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(To be continued).

(1) It should be noted that the collaboration between the co-operative consumers' movement and the agricultural co-operative organisations is not limited to the examples quoted above. The Consumers' Co-operative Association at Stockholm, which is the largest local co-operative society in the country, having some 75,000 members and a total annual turnover of about 50,000,000 crowns, sold in 1933 in its sale depots the following quantities of certain foodstuffs delivered directly by the producers' societies: 13,000,000 litres of milk, 2,200,000 kg. of eggs, 4,400,000 kg. of potatoes, and about 6,000,000 kg. of meat. Among the many other examples there may be mentioned: the *Mjolkcentralen* at Malmö, the third largest town in the Kingdom. This central organisation is the property of the consumers' co-operative association of the town and of the dairy farmers of the surrounding country. On the Council of Management the consumers and producers have equal representation. One third of the profits is assigned to the producers, one third to the consumers and the remaining third is retained by the organisation and goes to build up the capital. This body has aroused very general interest even outside Sweden. Thus at Geneva a Milk Central has been established on the model of the similar institution at Malmö.

The following facts will serve as an example of the importance of the consumers' co-operative movement from the point of view of the farming class. Of the 550,000 households representing a full third of the population of Sweden who in 1934 were members of the local association affiliated to the "Kooperativa Förbundet," about 80,000 were farm households, and about 22,000 were households of farm workers, that is to say, in all about one fifth of the total number of members affiliated to the consumers' co-operative societies. The total number of the sales effected by the associations affiliated to the "Kooperativa Förbundet," representing about 90 per cent. of all the existing local consumers' societies amounted in 1934 to 377,000,000 crowns. The turnover of the "Kooperativa Förbundet" during the same year amounted to 165,000,000 crowns and the total value of the output of the affiliated productive enterprises was 92,000,000 crowns. The factories belonging to this Union include the following:

## LAW ON AGRICULTURAL SETTLEMENT IN CHILE

The Republic of Chile consists, as is well known, in a zone lying on the south-west of the American continent, 4,300 km. in length from N. to S., and varying in width between 100 and 430 km., the total area being 757,366 km<sup>2</sup> (289,300 sq. miles circa). At the southern extremity the land is split up into an archipelago, the principal islands being Chiloe and Tierra del Fuego.

On the basis of the figures for the area devoted to agriculture, it would not be possible to claim that Chile is an eminently agricultural country. Actually of the total area, 757,366 square kilometres, 87,300 only are utilised for agriculture and 125,000 are to a moderate extent utilisable.

The following table shows the distribution of these agricultural areas, the zones in which they are situated and the types of cultivation predominating.

### *Areas fully utilised for agriculture.*

(In square kilometres).

Zones	Total area of zone	Irrigated land	Dry farming	Total area under cultivation
Desert . . . . .	271,218	300	—	300
Transitional . . . . .	49,072	1,500	—	1,500
Central . . . . .	100,898	10,000	—	10,000
Southern . . . . .	108,104	500	65,000	65,500
Patagonia . . . . .	228,074	—	10,000	10,000
	757,366	12,300	75,000	87,300

one margarine factory, one oil mill, two large flour mills representing about one fifth of all milling carried out in the large and medium-sized mills of Sweden; one boot and shoe factory, two rubber factories, one chemical products factory, one cash register factory, a number of coffee-roasting plants, establishments for the preparation of different kind of groats, flakes and Swedish crisp breads, etc. In addition the "Kooperativa Förbundet" initiated the movement for the establishment of the "Nordiska Andelsförbundet" (Co-operative Federation of the Northern Countries), a joint importing agency for the Central Co-operatives of the three Scandinavian countries and Finland. It was also the prime mover in establishing the Luma factory which manufactures electric lamps and now also is the property of the four Central organisations referred to above. In the course of its efforts of the "Kooperativa Förbundet" to overcome all tendencies in the direction of monopoly, a purpose which has inspired all the activities of the affiliated factories, this Union has been highly successful and in a way which has proved of the utmost value for the agricultural population alike in its capacity as producer and as consumer. Space does not permit of any more detailed examination of this question, nor of that of the other branches of activity of the "Kooperativa Förbundet", very important from the standpoint of the national economy,

*Lands moderately utilisable for agriculture.*

(In square kilometres).

Zones	Total area of zone	Utilisation for agriculture		Total area under cultivation
		Dry farming	Stock farming	
Desert . . . . .	271,218	—	—	—
Transitional . . . . .	49,072	5,000	—	5,000
Central . . . . .	106,898	60,000	—	60,000
Southern . . . . .	108,104	—	—	—
Patagonia . . . . .	228,074	—	60,000	60,000
	757,366	65,000	60,000	125,000

If the total of lands moderately utilisable for agricultural purposes, *viz.*, 125,000 km<sup>2</sup>., are added to the total of lands which are clearly fertile, 87,300 km<sup>2</sup>., a total area is obtained of 212,300 km<sup>2</sup>., a total which does not, as already noted, give the country a definitely agricultural character.

At the same time the majority of the population is engaged in agriculture, and agricultural production not only meets the requirements of the nation but also leaves a wide margin for exportation. The anomaly here presented is due probably to the distribution of the population; out of a population of 4,500,000 inhabitants, 80 per cent. are absorbed by the zones of agricultural production, and for this reason, although taking the Republic as a whole the agricultural character seems to be disproportionately slight, yet owing to the distribution of the population Chile is reckoned among the definitely agricultural countries.

A brief comment may now be made on the figures of the two preceding tables.

The desert zone includes the provinces of Tacna, Taracapa, Autofogasta and Atacama, zones almost completely sterile except for a small part of Atacama, where about 30,000 hectares of irrigated land are cultivated. The zone of transition includes the provinces of Coquimbo and Aconcagua; in this zone which is also characterised by sterility there are on the coast some areas of irrigated cultivation in all about 150,000 hectares, and it includes also some 500,000 hectares which can be utilised during a short period of the year as spring pastures and for dry farming in small parcels. The Central zone which includes the provinces of Valparaiso, Santiago, O'Higgins, Colchagua, Curico Talca, Linares, Maule, Nuble, Concepción and Biobio is the most agricultural of all Chile and includes 1,000,000 hectares of irrigated lands and 6,000,000 hectares of dry farming. In the southern zone which includes the provinces of Arauco, Malleco, Cautin, Valdivi and Chiloe there are 50,000 hectares of irrigated land and 6,500,000 of extremely fertile land which is at present hardly cultivated at all and which is the main objective of the land settlement scheme of the new law to be described here. The zone of the Magellan Straits, although not unsuitable for agriculture

has been up to now neglected, but will be dealt with under the law in question, which makes provision for the irrigation of 100,000 hectares and for bringing another 6,000,000 under stock farming.

The crops of Chile are those of the temperate zone; in the extreme north only certain tropical crops are grown but to a limited extent only. The main agricultural products are cereals, vines, and in irrigated belts, fruit trees. The most recent statistics give the following figures of production: wheat, 9 000,000 quintals; barley 2,000,000; maize 500,000; oats about 400,000 quintals. The most important cultivation is probably vine growing and it is estimated that in Chile there are some 64,000 hectares of vineyards and a production of 2,200,000 hectolitres of wine of the first quality and of 1,100,000 hectolitres of wines of inferior quality. As regards live stock, in round figures there are in Chile 4,500,000 sheep, 2,000,000 cattle, 1,000,000 horses and mules and 500,000 goats and pigs.

The main source of wealth in Chile up to the last ten years was constituted by its deposits of nitrate of soda in the desert zone. The yield from these deposits was so large that during the period at which it was at its height it was calculated that the deposits in actual working would have been sufficient to maintain for a century the annual export of 25,000,000 quintals of a value of 240,000,000 gold pesos, which was the record export of 1910, and this without having recourse in any way to new deposits. It was owing to the competition of sulphate of ammonia that Chile lost the leading position which it had so long held, and the seemingly inexhaustible source of wealth represented by the product diminished till now it represents an asset greatly reduced in importance (1).

It is this fact which has completely changed the economic structure of Chile and has compelled the legislator to seek in new directions the possibility of restoring normality in the trade balance of Chile so abruptly dislocated by the disappearance of practically the whole revenue from nitrate. In order to recover equilibrium recourse is had to agriculture and to the intensification of production with a view to securing a revenue that will replace that which has been lost and to establishing on the land a body of small holders from among those who, during the period of national prosperity, left the country for the towns.

The essential facts of the economic geography of Chile have been set out here so as to make clear the position in advance of the promulgation of the important law on agricultural settlement which will give a fresh orientation to the national life. The law itself may now be studied.

*The Law on Agricultural Settlement.* — On 15 February 1935 the law on agricultural settlement No. 5604 was promulgated after approval by the National Congress. This law was anxiously awaited by a large section of the popu-

(1) See in this connection the article published in the *Monthly Bulletin of Agricultural Economics* January and February 1935, pp. 1 to 16 and 55 to 77, prepared by C. KAPPSTEIN.

lation which is manifesting a legitimate desire to return to the land in order to make its contribution in that way to the national progress.

This law which had been the object of prolonged consideration by the Government was enacted at an historic moment for the Nation. After ten years of revolutionary periods and experiment in different types of government a normal period had been reached in which it became possible to give attention to a problem of national importance such as was the definite introduction of agricultural settlement, intended to mark the beginning of a new era of development in the economic and social conditions of Chile.

The law, the main outline of which will be given here together with a brief commentary, is complete and presents the character of a true agrarian reform. It establishes in the first place a National Bank of Agricultural Settlement (*Caja Nacional de colonización agrícola*), a supreme self-governing institution constituted as a corporate body and placed in charge of Chilean land settlement; it then enunciates the principles that are to govern the future application of agricultural technique, credit and co-operation, in fact, of all activities relating to agriculture.

No attempt will here be made to analyse the text of this voluminous piece of legislation. The account given of its general spirit and of the changes introduced by it will be however sufficient to enable the reader to judge with some precision of the achievement in this respect of the Chilean Government.

Confining the examination to the essence of the law, it will be noted, as already stated, that the Bank of Agricultural Settlement is established with the function of making settlements on the State lands or on those of private persons, when requirements of the community as a whole shall make necessary their incorporation in such a way as to secure more effective production. Through the medium of its technical bureau, the Institute will proceed to the parcelling and subsequent formation of lots on the lands on which settlement is contemplated in order to place new settlers thereon. Once these are re-established on the land, the Institute will issue carefully prepared instructions to these new farmers with a view to intensification and industrialisation of production with the help of centres of agricultural organisation. It will encourage the co-operative spirit among the settlers, while credit, as well as all other measures required for success in co-operation will not be neglected.

In assigning to the *Caja de colonización* these functions of prime importance, the law proceeds to fix the capital at 100,000,000 pesos to be paid over by the State Treasury in four annual instalments of 25,000,000 each. It further prescribes the investment of these funds, assigning the greater part, or 50 per cent., to the purchase and working of lands situated in the southern zone of the Republic (the *zona Magallánica*). This is a very extensive zone of *latifundia*, and consequently in special need of settlers prepared to work hard so as to bring under cultivation wide tracts of land that by lapse of time and neglect have become overgrown with scrub to the destruction of all proper cultivation. These lands have so far escaped the initiative of the private settler, and funds have not been available to transform them into the storehouse of wealth which this zone of exuberant vegetation may certainly become.

The administration of the Bank is placed in the hands of a Council of Management, composed of a president nominated by the President of the Republic, the Director of Land and Lands Settlement, the Director of the Bank itself, three representatives of the settlers and one representative for each of the nine most important agricultural institutions of Chile, *viz.*, the Northern Agricultural Society, the National Society of Agriculture, the Southern Agricultural Society, the Co-operative Society and Agricultural Society of Temuco, the Agricultural and Stock-farming Society of Osorno, the Chilean *Sociedad agronómica* and the *Federación Agronómica Nacional*.

In regard to purchase of lands, the law declares finally in article 21 that "there shall be declared of public utility and accordingly liable to expropriation all lands required by the Government for its purposes of land settlement." The purchase price of these lands will be fixed on the basis of the valuation made by the experts nominated by the Bank; mortgage charges burdening the lands to be purchased must be stated and paid off before expropriation. As soon as the valuation is made by the experts, the Bank may take possession of the lands, first depositing in the Treasury the amount of the said valuation; the purchaser (the Bank), and the seller if they are not in agreement with the valuation by the experts, alike have the right to appeal to the courts of law within a period of 20 days. After the lapse of that period the Bank notifies the owner that it takes possession of the lands; and against this decision there is no appeal.

The lands purchased will be divided into lots of an area which will vary in accordance with the situation, the following may be taken as examples of these variations

	Maximum limit of size of lots ha	Minimum limit of size of lots ha
Rio Nuble (northern zone) . . . . .	30	4
Rio Nuble (southern zone) . . . . .	100	20
Dry farming zones . . . . .	500	50

The total price which will be assigned to each parcel on the basis of the valuation made by the experts and taking into account the improvements, or work of any kind, that have been carried out on it, will be paid in instalments to which will be added the one per cent. of amortisation. The total sum will bear an interest of 4 per cent. Payment of these annual instalments will begin from the second farming season, unless it is a case of commercial crops when, in view of the higher expense involved in their cultivation, payment will begin after the lapse of four years. In all cases additional amortisation payments may be made up to the total amount of the debt. The legal title to ownership of a parcel in favour of a settler to whom the land has been assigned will be granted by the Bank only when he shall have paid the fifth part of the fixed price, if the land responds well to farming, or a tenth part, if the case is one of land requiring special attention. Settlers whose payments are in arrears will pay 7 per cent. interest on the arrears, and in the event of prolonged failure to pay they will lose the

claim to ownership and will be withdrawn from the land, after repayment in full of all payments they may have made.

A settler in order to acquire land in ownership must:

- (a) be married;
- (b) be between the ages of 20 and 60 years;
- (c) have good health and a good character;
- (d) not possess any other rural property of value equal to or higher than that of the parcel in question.

In the case of a settler of over 60 years of age a parcel may be acquired in ownership, in spite of the provision to the contrary just stated, if he has health and strength to work and if he has a son at least 17 years old. As exception the clause excluding non-married persons from the holding of lots in ownership, widowers with families may be admitted provided they conform to the remaining requirements.

The law further indicates an order of preference for the acquisition of lands, in accordance with which preference will be given among the candidates to:

1. persons who show that they have special experience in the type of farming which it is intended shall be mainly carried out on the settlement in question;
2. persons holding the certificate of "agrónomo," or proving their competence in farm work by means of certificates obtained at institutions of agricultural instruction;
3. persons showing that they have habitually worked on the land,
4. the best qualified among those who have attended schools of agriculture;
5. public and private employees who are without employment and who fulfil the requirements of the law, as regards civil status, age, etc.;
6. all Chileans, resident abroad and possessing the required qualifications as to age, etc., who express their intention of returning to their country in order to go on the land,
7. fathers of families.

In addition there is established in the law an order of preference within the respective classes of candidates for settlement lots, such preference being given to unemployed persons. This preference is due to the general situation in Chile, as very high unemployment figures are now reached in the large towns. This is to a great extent due to the numbers of former farm workers who have left the land and found their way into the towns where, now that the epoch of the nitrate prosperity is over, they have only rendered life more difficult for the industrial population and swelled the unemployment statistics. It is in fact towards the restoration to the land of these masses that the majority of the provisions of the law are directed; *viz.*, towards the creation of a class of small holders from an element which comes originally from the land and left it under pressure of circumstances — while at the same time the object is to bring under cultivation zones of high productivity.



The new settler is not left to chance in his fresh avocation; the law makes provision for the technical and practical training of the settlers by experts, to be carried out on experimental farms. Under art. 56 of the law the *Caja Nacional de colonización agrícola* will acquire in the different zones of Chile farmlands, with a view to their being worked, under its own administration, by persons wishing to qualify as settlers, and used as schools for the training, selection and specialisation of future settlers. These lands will be placed in charge of an Agronomic Section, and will be equipped with the improvements required for better farming, with machines and all farming requisites, with live stock and all the plant essential to satisfactory stock farming. All buildings required for the future settlers will also be provided. Every candidate will have the right to farm on his own account and for his own benefit, with the means placed at his disposal by the Bank, a small plot of land by preference attached to his dwelling house, while at the same time he will continue to perform the collective work expected of him.

For the purposes of the law, these candidates will be regarded as farm workers, and they will be required:

- (a) to be of Chilean nationality and married;
- (b) to be not more than 50 years of age;
- (c) to bear a good character and to enjoy health compatible with performance of work.

In each settlement school, a balance sheet is established every year with a view to ascertainment of profits or losses. If the accounts show a liquid profit, that is to say, if, after deducting from the net return, or gross profit, the interest payable on the capital and the amortisation payments due, there should remain a "liquid" profit, this is to be distributed between the management of the settlement school, the employees and the candidates undergoing training.

*Co-operation as applied to land settlement.* — In the purchase of lands by the Bank of Agricultural Settlement for the formation of settlements, in the parcelling of these and assignment of parcels to new settlers, each settlement is regarded as automatically constituted as an agricultural co-operative society in conformity with the special rules enacted on the subject. Co-operative societies thus constituted will enjoy all the advantages given by the legislation in force to societies of this type. They are under the supervision of a manager appointed by the Bank, a supervision which will come to an end when the co-operative settlement ceases to be a debtor of the Bank, that is to say, when the settlers on such settlement have made the final payments for their parcels.

This co-operative system applied to the settlements includes all branches of co-operation: purchases, sales, obtaining of fertilisers and seeds, joint utilisation of machines, etc.

Up to the present time there has been practically no recognition in Chile of the importance of the co-operative factor for the progressive development of agriculture and stock farming. This has been due to the inequitable conditions of land tenure and to the egoistic spirit found among both large and

small farmers and their consequent inability to understand the positive results to be obtained from co-operation. Once the settlements are constituted, formed by rapidly expanding groups of peasants, co-operation under its different forms will give its full results, and will undoubtedly prove to be the most effective and suitable method of farming.

*Financing of the Settlements.* — The law on land settlement finally deals with the question of credit. In addition to the capital of 100,000,000 pesos which form the endowment of the *Caja de colonización*, the law empowers the President of the Republic to issue every year an internal loan of 300,000,000 pesos at a rate of interest not exceeding 6 per cent. and with an annual amortisation not less than one per cent.

The administration of the funds derived from this loan will be directly and exclusively in the hands of the *Caja de colonización* which will devote them to the purposes of land settlement as defined by the law.

E. MARTINEZ DE BUJANDA.

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(1) Previous list June 1935. To be continued December 1935.

(2) List of abbreviations: bihebdom. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebdom. (weekly); int. (home price); irr. (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebdom. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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# ANNUAIRE INTERNATIONAL DE LÉGISLATION AGRICOLE

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**FRENCH EDITION ONLY**

This volume, published in French of about 1000 pages 8<sup>vo</sup> contains the text of the more important laws and decrees affecting agriculture; the laws and decrees of secondary importance are carefully listed with title, date of promulgation, number, official source, etc. The *Annuaire* is prefaced with an analytical introduction summarising the laws and decrees published in the volume and showing the trends of Agricultural legislation during the year 1934.

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# MONTHLY BULLETIN

OF

## AGRICULTURAL ECONOMICS AND SOCIOLOGY

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### MEAT IMPORTS AND THE LIVESTOCK INDUSTRY IN THE UNITED KINGDOM

Until a few years ago, the live stock industry in the United Kingdom had to compete against the free and unrestricted importation of chilled and frozen meat (1) both from British Dominions and from foreign (principally South American) countries, as well as the importation of live animals from the Irish Free State and Canada. The seriousness of this competition is indicated by the table on page 354 showing the imports of meat in the twelve months ending 30 June 1932.

In addition to the imports shown in the above table there were small imports of other kinds of meat as well as imports of live cattle (mainly from the Irish Free State), and of sheep and lambs (exclusively from the Irish Free State). The number of cattle imported was 169,538 in July-September 1931; 278,138 in October-December 1931; 183,506 in January-March 1932, and 139,405 in April-June 1932, making a total of 770,587 in 1931-32. The number of sheep and lambs imported was 256,796 in July-September 1931; 133,887 in October-December 1931; 58,928 in January-March 1932, and 147,088 in April-June 1932, making a total of 596,699 in 1931-32.

It will be seen from this table that the chilled beef supplies represented a much larger volume of meat than the supplies of any other type of meat imported and that they came almost exclusively from South America, mainly from Argentina. On the other hand, as regards mutton and lamb, the United Kingdom was drawing nearly three fourths of its supplies from British countries mainly Australia and New Zealand, the latter being the largest supplier, especially of lamb. Furthermore there was—though it is not apparent from the table—a strong movement in Australia for developing the exportation of beef, chiefly in the form of frozen beef, though some experiments had already been made in the shipment of chilled beef.

When, in 1932, the United Kingdom abandoned its traditional policy of free trade, the live stock industry obtained no benefit from the new protective measures, as meat was expressly exempted from the duties imposed by the Import Duties Act. Incidentally, a small measure of protection was afforded

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(1) In this article, pig-meat, unless expressly stated, is not included.



to the industry when, for reasons lying outside the scope of this article, the British Government imposed an *ad valorem* duty of 20 per cent. on imports from the Irish Free State of live animals for food and meat of all kinds. This duty came into operation on 15 July 1932, and on 15 November 1932 it was increased to 40 per cent. on live animals and to 30 per cent. on meat. In April 1933 specific duties were substituted for the *ad valorem* duty on live cattle for food and in the following month for the *ad valorem* duty on sheep and lambs. To some extent the effect of these duties was counteracted by export bounties offered by the Government of the Irish Free State.

TABLE I. — *Imports of Meat and Live Animals in 1931-32.*

PERIOD	Australia	New Zealand	Uruguay	Argentina	Other countries
	cwts.	cwts.	cwts.	cwts.	cwts.
<b>Chilled Beef.</b>					
July-Sep. 1931 . . . . .	—	—	174,175	1,918,220	(1) 153,901
Oct.-Nov. " . . . . .	—	—	125,971	1,984,485	(1) 3,798
Jan.-Mar. 1932 . . . . .	—	—	152,206	2,001,612	(1) 131,012
Apr.-June " . . . . .	—	—	156,578	1,781,588	(1) 261,822
Total (1931-32) . . . . .	—	—	608,930	7,685,905	550,533
<b>Frozen Beef:</b>					
July-Sep. 1931 . . . . .	438,098	70,753	41,100	110,419	70,933
Oct.-Nov. " . . . . .	368,868	165,950	64,262	182,163	47,304
Jan.-Mar. 1932 . . . . .	160,638	51,853	49,660	199,795	37,886
Apr.-June " . . . . .	156,426	88,642	42,940	119,312	31,851
Total (1931-32) . . . . .	1,130,030	377,198	197,962	611,689	187,974
<b>Frozen Mutton and Lamb.</b>					
July-Sep. 1931 . . . . .	271,618	1,149,598	18,797	315,738	73,465
Oct.-Nov. " . . . . .	722,238	538,061	66,695	289,560	12,909
Jan.-Mar. 1932 . . . . .	315,071	790,930	75,434	439,355	16,418
Apr.-June " . . . . .	181,174	1,429,465	35,839	351,440	(2) 250,251
Total (1931-32) . . . . .	1,490,101	3,908,054	96,765	1,396,093	353,043

(1) All these imports were from Brazil.

(2) Including imports of 248,450 cwts. from Chile.

Already in 1932 the live stock industry was in a severely depressed condition. The averages prices of English beef and English mutton in each month from July 1931 to June 1932 are shown in the following table.

TABLE II. — *Prices of English Beef and English Mutton in each month from July 1931 to June 1932 (shillings per cwt.).*

			Beef	Mutton
July	1931	. . . . .	86s 4d	108s 3d
August	"	. . . . .	79s. 4d.	98s 0d
September	"	. . . . .	72s 4d	93s 1d
October	"	. . . . .	72s. 4d	86s 7 ½d
November	"	. . . . .	67s 8d	80s 6d
December	"	. . . . .	70s 0d	77s 5 ½d
January	1932	. . . . .	72s 4d	78s 0d
February	"	. . . . .	74s 8d	77s. 5 ½d
March	"	. . . . .	77s 0d	77s 11d
April	"	. . . . .	79s 4d	77s 10d.
May	"	. . . . .	79s 4d	77s 0d
June	"	. . . . .	84s. 0d	79s. 0d

In view of this state of depression it was deemed advisable to take measures for regulating the imports of meat, whether from foreign or Dominion suppliers.

An opportunity of doing this arose when the Economic Conference of the British Empire was held in Ottawa in July and August 1932. At that Conference a series of agreements was made between the United Kingdom and the various British Dominions. In so far as those agreements related to meat, the policy of the Government of the United Kingdom was stated to be, first, to secure development of home production and, secondly, to give to the Dominions an expanding share of imports into the United Kingdom.

Under the Ottawa Agreements between the United Kingdom and Australia and between the United Kingdom and New Zealand, the following undertakings were given in respect of the different types of meat imported into the United Kingdom.

The Government of the United Kingdom undertook that the quantities of foreign *chilled beef* allowed to be imported into the United Kingdom during each quarter of the period from 1 January 1933 to 30 June 1934 should not exceed the quantities imported in the corresponding quarters of the twelve months ended 30 June 1932. (This period is frequently referred to as "the basic Ottawa year").

The maximum quantities of foreign *frozen beef and veal* allowed to be imported into the United Kingdom over the same period were to be subject to a graduated restriction, expressed as percentages of the quantities imported in the corresponding quarters of the basic year, as follows: January-March 1933, 90 per cent.; April-June 1933 85 per cent.; July-September 1933, 80 per cent.; October-December 1933, 75 per cent.; January-March 1934, 70 per cent.; April-June 1934, 65 per cent.

On the other hand the United Kingdom agreed not to impose any restriction upon imports of frozen beef from Australia or New Zealand during the period 1 January 1933 to 30 June 1934. The Commonwealth Government in Australia, in return, undertook to use its best endeavours to ensure that during the year 1933 the exports of frozen beef from Australia to the United Kingdom should not be increased to an extent exceeding 10 per cent. of the quantities exported during the basic year 1931-32. New Zealand, while giving no undertaking in respect of its comparatively small beef export estimated the exports for the season 1932-33 at a quantity representing a maximum increase over the previous season of approximately 10 per cent.

The imports of foreign *frozen mutton and lamb* into the United Kingdom were to be restricted in accordance with the same graduated scale as the imports of foreign frozen beef.

As with frozen beef, the United Kingdom agreed that it would impose no restrictions on imports of frozen mutton or lamb from Australia or New Zealand during the period 1 January 1933 to 30 June 1934. On this express understanding, and in view of the agreed reductions imposed by the United Kingdom on foreign supplies of mutton and lamb, Australia and New Zealand undertook to limit their shipments of frozen mutton and lamb made to the United Kingdom during the calendar year 1933 to the quantities shipped by the two countries respectively in the basic year ended 30 June 1932. To assist in the orderly marketing of supplies, New Zealand, the larger supplier of the two countries, gave a further undertaking that a reliable estimate of these shipments would be given as early as possible in each export season, *i. e.*, from October in any year to 30 September in the following, and an estimate was given (actually of 4,000,000 cwt.) for 1932-1933 with a five per cent. increase in each of the years 1933-34 and 1934-35.

In regard to all classes of meat, the Government of the United Kingdom undertook to consider during 1933, in consultation with the Dominion Governments, the best means of ensuring an improved price situation and the more orderly marketing of supplies. Failing the adoption of an agreed permanent policy, the Government of the United Kingdom undertook that after June 1934, until the expiry of the Ottawa Agreements in 1937, it would arrange for the continuance, unless otherwise agreed between the Governments concerned, of the regulation of the imports of foreign meat at the rates in force in April-June 1934.

In the Agreement between the United Kingdom and South Africa no specific mention was made of beef, but the Government of the United Kingdom undertook that, in applying any powers that it might obtain from Parliament for the quantitative regulation of imports of mutton and lamb into the United Kingdom it would make provision for the importation of South African mutton and lamb.

In its Agreement with Canada the Government of the United Kingdom undertook to invite Parliament to pass the legislation necessary to modify the conditions governing the importation into the United Kingdom of live cattle from Canada on lines that had already been agreed upon in principle.

The Ottawa Agreements remain in force until August 1937 and until that date the United Kingdom is further precluded by their terms from imposing any form of duty or levy on Dominion imports of meat except with the consent of the Governments concerned. On the other hand, it will be noted that the United Kingdom was not precluded from imposing quantitative restriction on Dominion imports of meat after 30 June 1934.

The Anglo-Argentine Trade Convention, which was signed in London on 1 May 1933, became effective in November 1933 and expires in November 1936, contained important undertakings in regard to meat. The trade in meat is of paramount importance to Argentina, while it was also essential to the United Kingdom to preserve the trade with Argentina, which is a large importer of British manufactured goods.

Under Anglo-Argentine Agreement Great Britain undertook that, except in so far as essential to maintain prices of home-killed beef, restrictions would not be imposed on imports of chilled beef from Argentina below the level of the quantities imported in the corresponding quarter of the year ended 30 June 1932, in other words, below the 100 per cent. of basic year imports indicated under the Ottawa Agreements for chilled beef imports from foreign sources. In the event of any reduction below this level becoming necessary, the United Kingdom further undertook that (a) in the case of a reduction by 10 per cent. or less below the level of the basic year, the amount so excluded was not to be effectively replaced by imports of chilled beef from other sources, except in the case of the Dominions by experimental shipments only, (b) any reduction of more than 10 per cent. was to apply proportionately to similar imports from other meat supplying countries, including the Dominions.

In respect of imports of frozen meat (beef, mutton or lamb) no restrictions were to be imposed in excess of the graduated scale specified in the Ottawa Agreements, unless imports from the Dominions were similarly restricted.

Prior to the coming into force of the Anglo-Argentine Trade Convention, and even of the Ottawa Agreements, it was found necessary, in view of the continued decline of wholesale prices of home-killed beef, to make voluntary arrangements with South American shippers for the immediate reduction of their imports of chilled beef. The shippers agreed to reduce their marketings of chilled beef in the United Kingdom by 10 per cent., rising if necessary to 20 per cent., during the months of November and December 1932. In the first quarter of 1933 the imports of chilled beef from South America were 10 per cent. below the rate permitted by the Ottawa Agreements, but for the second quarter a reduction of only 2 per cent. was arranged. For the third quarter it was arranged that the imports of chilled beef should be 10 per cent. less during the first half of the quarter than in the corresponding period of the year taken as a base in the Ottawa Agreements and 12 ½ per cent. less during the second half of the quarter. For the first half of the last quarter of 1933, the reduction asked was 15 per cent., or as near thereto as was compatible with the economical use of the shipping space available.

In the first quarter of 1934, voluntary arrangements were made to reduce imports from foreign countries by the same extent as in the first quarter of 1933.

In the second quarter imports from foreign countries were reduced under similar arrangements by 3  $\frac{3}{4}$  per cent., as compared with imports in the second quarter of 1932.

No voluntary arrangements were made for further restriction on the imports of frozen beef.

Voluntary arrangements were made with the South American shippers to reduce their marketings of frozen mutton and lamb in the United Kingdom by 20 per cent. in November and December 1932. The Australian and New Zealand Governments agreed, without prejudice to their position under the Ottawa Agreements, to reduce their shipments during the same months to 10 per cent. less than their shipments in the corresponding month of 1931. The reduction in imports from New Zealand was, in fact, considerably greater, being 44  $\frac{1}{2}$  per cent. in the case of mutton and 37 per cent. in the case of lamb. No special arrangements were made in regard to imports of mutton and lamb after the beginning of 1933, the reductions being as laid down in the Ottawa Agreements.

With a view to avoiding further reductions in the prices of cattle in the United Kingdom, an Order under the Agricultural Marketing Act of 1933 was issued by the Board of Trade in December 1933 regulating the importation of fat and store cattle from the Irish Free State and prohibiting the importation of beef, veal and beef and veal offals from that country. The main effect of the Order was to secure a reduction of 50 per cent. in the imports of fat cattle and to prevent any increase in the importation of store cattle. In each case the comparison was with the corresponding quarter of 1932-33.

The Canadian Government was asked to co-operate by stabilising the exports of cattle, both fat and store, to the United Kingdom for the first quarter of 1934 at the corresponding figures of the first quarter of 1933 and agreed to do so.

The measures to regulate the supplies of beef and of fat cattle did not bring about the desired improvement in the prices of fat and store cattle and the Government examined various possible means of relieving the serious position of the beef producers. The means examined were set out in a White Paper on the Live Stock Situation in July 1934. They included:

- (a) a drastic reduction of imports by means of quantitative regulation;
- (b) action along the lines of the Wheat Act, 1932, involving the collection of a levy on imports of meat, to provide a fund from which payments could be made to supplement the returns accruing to home producers from the sale of their stock in the open market, imports being unregulated;
- (c) a levy on imports and payments to producers, as referred to above, coupled with some degree of direct supply regulation in the interests of all suppliers.

The Government favoured [the last proposal as the best long-term solution of the problem, but owing to the Ottawa Agreements and the Agreement with Argentina, so far as the levy was concerned, the proposal could not be carried out except with the consent of the Governments of the Dominions and of the Argentine Government. Discussions were opened up with these Governments, but, as they were likely to be somewhat prolonged, immediate steps had to be taken to relieve the position of the home producers.

Accordingly in July the Government introduced an emergency measure which was passed rapidly through Parliament and became law as the Cattle Industry (Emergency Provisions) Act, 1934.

Under this Act a Fund was established, to be known as the "Cattle Fund," and the Treasury was authorised to make advances to it during the financial year ending 31 March 1935 not exceeding £3,000,000. Out of this Fund the appropriate Ministers—for England and Wales, the Minister of Agriculture, for Scotland, the Secretary of State for Scotland; for Northern Ireland, the Secretary of State for the Home Department (England)—were empowered to make payments to producers of cattle in respect of steers, heifers and "cow-heifers" (1) or the carcasses of such animals, sold by the producers in the United Kingdom during the period beginning not earlier than 1 September 1934 and ending on 31 March 1935. The payments were not to exceed 5s. per cwt. in the case of live animals nor to exceed 9s. 4d. per cwt. in respect of carcasses. The rates of payment were fixed by an Order made by the Ministers and issued on 21 August 1934 at the maximum rates allowed by the Act.

The Act further authorised the Ministers to appoint an advisory committee to be known as "the Cattle Committee." Such a Committee was in fact formed on 31 July, and immediately prepared a plan of arrangements for carrying out the provisions of the Act. The plan included the recognition by the Committee itself of Live-weight Certification Centres at which producers were to present animals in respect of which they wished to claim payment and of Dead-weight Certification Centres at which carcasses were to be presented. At the Live-weight Centres, Certifying Authorities were to be appointed consisting of three persons who would determine whether an animal was eligible, and would see that it was properly weighed. A Certifying Officer was also to be appointed who would issue a certificate in respect of eligible animals; this Officer would be a member of the Certifying Authority. At Dead-weight Centres only a Certifying Officer was to be appointed, who would determine the eligibility of animals and carcasses and issue the certificate.

The standard laid down for eligibility for the subsidy from 1 September to 31 December 1934 was that the animal should have an estimated killing-out percentage of not less than 52 per cent., and from 1 January to 31 March 1935 a killing-out percentage of not less than 54 per cent.

The number of cattle certified in the United Kingdom in each month from September 1934 to February 1935 was as shown in Table III (page 360).

Of the total number, 741,637, the animals certified at Live-Weight Certification Centres accounted for 724,723 while only 16,914 animals were certified at Dead-Weight Certification Centres.

The average live-weight at which fat cattle were marketed over the whole of the United Kingdom in the six months was 9 cwt. 2 qr. 8 lb. For England and Wales the average was 9 cwt. 2 qr. 10 lb.; for Scotland, 9 cwt. 3 qr. 2 lb., and for

(1) A "cow-heifer," as defined in the Act, is an animal which has calved, but which has grown not more than six permanent incisor teeth.

Northern Ireland, 8 cwt. 2 qr. 14 lb. The dressed carcase weights of the animals certified at the Dead-Weight Certification Centres average 601 lb.; for England Wales the average was 598 lb. and for Scotland 617 lb.

TABLE III. — *Certified Cattle.*

	Steers	Heifers	Cow-heifers	TOTAL
September 1934 . . . . .	62,104	49,354	3,792	115,430
October " . . . . .	69,276	58,462	4,592	132,330
November " . . . . .	58,403	50,728	4,130	113,261
December " . . . . .	63,638	51,083	3,832	118,553
January 1935 . . . . .	82,093	51,869	4,953	138,915
February " . . . . .	77,576	41,157	4,415	123,148
Total for the six months . . .	413,090	302,833	25,714	741,637

As the negotiations with the Dominions and with Argentina had not been concluded when the period for which the subsidy was granted was nearly at an end a further Act—the Cattle Industry (Emergency Provisions) Act, 1935—was passed providing for a short extension of the provisions for the payment of the subsidy. This extension was limited to three months in the first instance, but the Act provided for a possible further extension to six months and the period was subsequently extended to 30 September in accordance with this provision.

Up to 11 April 1935, subsidies amounting to £2,129,832 had been paid in respect of 888,848 animals, the average payment per beast being £2 8s *od.*

*(To be continued)*

CAROLINE HUBBACK.

J. K. MONTGOMERY

## AGRICULTURAL CO-OPERATION IN SWEDEN

*(Continued).*

### 3. -- CO-OPERATION AND THE DAIRYING INDUSTRY.

The total production of milk in Sweden may be estimated at present at about 4,700,000 tons, of which 1,700,000, or one third, are consumed by the producers as human food or stock feed, and the remainder, 3,000,000 tons, is sold, thus accounting for about 40 per cent. of the gross returns of farming. Of the total quantity sold, about three fourths is handled by dairies of which there

are about 1,500, nearly half being co-operative dairies. The part played by these latter in the Swedish dairying industry is, however, much more important than would appear from the above figures as they are generally larger than the private dairies. The co-operative dairies group on an average three times the number of suppliers and handle three and a half times the quantity of milk per dairy of the other dairying enterprises, also about three fourths of the total quantity of milk passing through all dairies is handled by the co-operative dairies which also produce about 80 per cent. of all the dairy butter. On the other hand, in respect of cheese production it is only during the last few years that the co-operative dairies have become of importance, and the quantity of cheese produced has only of late years reached the level of the private dairies.

With few exceptions—among which is, however, found the largest dairying business in the country, the Milk Central (*Mjölkcentralen*) at Stockholm which will be mentioned again later on—there was, five years ago, little co-operation between the dairies on the national market which, in respect of milk production in Sweden, is much the most important. On the other hand, for exportation of butter, regional associations were already constituted grouping the co-operative dairies and, in order to benefit joint interests in marketing conditions, a single organisation of co-operative and private exporting dairies, called the *Sveriges smörexportfirmors förening*, had been founded in 1928. The effects of the competition between the different dairies and between the dairies and the unorganised producers were naturally aggravated at the beginning of the present agricultural crisis and rendered even more pressing the need for radical reforms in the dairying industry, both from the standpoint of organisation and from the commercial point of view. In order to encourage these reforms, the Parliament in 1930 and 1931 voted large credits and also passed a Law in 1932, to which reference will be made later, imposing a levy on milk intended for the market with a view to equalising the price of butter for export and butter sold on the national market. With the help of this State subsidy, an extensive and efficacious work of organisation was undertaken under the direction of the *Sveriges Allmänna Lantbrukssällskap* (General Agricultural Society of Sweden); new co-operative associations were established, dairies which did not come up to modern requirements were replaced by modern dairies, the smaller dairies were grouped into larger concerns and dairying organisations were established in the largest areas. For the use of all these re-organised and newly formed bodies, the Society drew up model rules framed with the object of transforming both large and small dairies into sound economic enterprises.

Two methods were followed for grouping the dairies into larger units: either all the dairies in a territory were amalgamated into a single economic enterprise under a joint management or else the various dairies remained independent, but were grouped under the name of Dairying Federations (*Mejeriförbund*). These processes of amalgamation and federation were carried out very rapidly and by May, 1932, when these organisations were formed into a single national organisation, the *Svenska Mejeriernas Riksförening* (National Union of Swedish Dairies), they were 17 in number, each covering one or several provinces with a total of 467 affiliated dairies and handling a quantity of milk corresponding



to 53 per cent. of the total volume handled by all the dairies in Sweden. Since that time the development has continued and, at the end of 1934, the Union included 27 dairying organisations which represented 764 dairies, as well as 173 secondary dairies and separating stations, 84 per cent. of all the dairy butter in the country and 57 per cent. of the total cheese production in Sweden.

*Organisation of Local Dairying Associations.* — From the standpoint of organisation, the co-operative dairies still show considerable variations, but the work of re-organisation is being continued with increasing observance of the model rules drawn up by the General Agricultural Society of Sweden. According to the provisions contained in these model rules, membership of an association of co-operative dairies is obtained by the payment of a share of 60 crowns per cow on any farm situated within the area of activity of the association. Of this initial payment of 60 crowns, 10 crowns should be paid in cash when joining and the remainder is payable in monthly instalments. The member is expected to deliver all the milk produced on his farm to the association, with the exception of the quantity required for household use. With the consent of the council of the association, and at the price fixed by it, the member may, however, sell his milk in a place where the association's milk is not sold. The supreme authority of the association is vested in the general meeting, at which every member has a right to one vote for every ten shares on which payments are in course of being made. The association, before making payments for the milk consigned to it, first deducts from the sum available for this purpose each month the sum required for management expenses, while 0.50 per cent. is placed to the reserve fund during each of the first five years, and subsequently 1 per cent. till 20 per cent. of the initial capital has been reached. If after these monthly deductions have been made, the balance at the end of the year shows a profit, at least 10 per cent. is deducted from the surplus and placed in the reserve fund, up to an amount not exceeding the percentage already indicated. When the profits are no longer transferred to the reserve fund, at least 20 per cent. of the surplus should be assigned to the renewals fund. A final distribution of profits among members is made in proportion to the milk payments received by them in the course of the year.

*Organisation of the "Amalgamated Dairies."* — This, in accordance with the model rules drawn up by the General Agricultural Society, much resembles that of the local dairying associations, in respect of the initial payments, the obligations of members, and their rights of voting, the composition of the administrative council, sinking funds and other funds, etc. The essential differences, resulting from the greater extension of the amalgamations, are that the right to vote in the general assembly is not exercised directly by the members, as in the local organisations, but by their representatives elected by district meetings at the rate of one representative per each 500 initial payments in the district; and that an Administrative Council exists, in addition to the Council of Management, which takes part in the deliberations of the latter in questions of importance. In the district meetings, which are meetings of members in the respective districts

into which the activity of the amalgamation is divided, the right to vote is exercised according to the same rules as for the assemblies of local associations.

*Organisation of Dairying Federations.* — In accordance with the model rules drawn up by the General Agricultural Society for the use of dairying federations, these organisations admit as members, not only co-operative dairies, but also, when necessary, private dairies on condition that their rules are not contrary to the objects of the associations.

The object of the dairying federations is to improve the quality of the milk and dairy products, to prevent internal competition between the dairies, to encourage the scientific organisation of the dairying industry, to increase the consumption of milk and dairy products, to encourage the adoption of a unified accountancy and of a single payment system, to act as an intermediary for the purchase of machines and other equipment required for the affiliated dairies, to encourage co-operation in agriculture by educational means, etc.

When joining a dairying federation the member takes up one share for each 100,000 kg. of milk delivered during the previous year or a corresponding quantity of cream. These shares amount to at least 200 crowns each, 15 to 20 per cent. of which is paid in cash and the remainder in monthly instalments over a period of 2 to 3 years. In addition to this initial payment, the member is also obliged, on joining the federation, to sign a guarantee to pay double the amount of his share one month after cancellation of membership which takes place only if the member fails to carry out his duties. The proportion of the guarantee sum, actually required to be paid, is decided by the Council.

The member is expected to deliver all his milk and dairy products for sale to the federation, but the council of the federation may, if considered advisable, entrust a member with the sale on the local market on behalf of the federation according to the conditions fixed by the council.

A member may resign from the federation not earlier than two years after the date of joining.

In the general meeting each member has the right to one vote and an additional vote for each ten shares over and above the first share. When more important questions have to be decided, the council of management, composed of 7 members elected by the general meeting of the federation, is assisted by an administrative council of 20 members elected by the councils of management of the affiliated organisations.

To cover the expenses of the federation a certain commission is charged on the sale of products or on purchases made on behalf of members. In addition, before payment is made for products delivered, 0.02 öre per kg. of milk is deducted and placed in a special fund which cannot be drawn on except in cases of emergency.

At least 20 per cent. of the profits should be placed in the reserve fund up to the amount of 20 per cent. of the initial capital. With the rest of the profits a dividend may be paid of 5 per cent. on fully paid shares and the remainder, according to the decision of the assembly, constitutes a fund or is distributed among the members in proportion to their turnover during the course of the year.

The activity of the *Mjölkcentralen* (Milk Central) of Stockholm, the largest regional organisation of dairies and milk producers, and, also probably the largest and most prosperous co-operative organisation in the world for the sale of liquid milk, may here be examined in rather more detail before passing on to a description of the organisation and activity of the *Svenska Mejeriernas Riksförening* (National Union of Swedish Dairies). The *Mjölkcentralen*, which was established in 1915 by a co-operative organisation that had taken over a private milk distribution business, on 1 July 1935 included 15,990 affiliated farmer members owning 154,420 cows, *i. e.*, an average of 10 cows per member. The area of supply to the Central from the districts surrounding the capital extends to a radius of about 160 km. On 30 June 1935 the Central was operating 34 butter making dairies and 78 cheese factories besides a large number of separating and collecting stations. The total quantity of milk received at all these localities taken together from 1 July 1934 to 30 June 1935 amounted to 467,000,000 litres, *i. e.*, to about 1,300,000 litres per day. During the same period 10,900,000 kg. of butter were sold and 7,100,000 kg. of cheese were made by the Central. This body also carries on a very considerable trade in eggs, and is engaged in casein manufacture and in pig raising. About two thirds of the milk supplied to the capital is under the supervision of the Central which maintains some 150 retail sale depots in Stockholm. A very large proportion (amounting to nearly 13,000,000 litres) of the milk sales made by the Central in the capital is however, as previously stated, effected through the Consumers' Co-operative Association of Stockholm.

The function of the *National Union of Swedish Dairies* is to promote the economic interests of its members by selling, within such limits as are imposed by circumstances, the milk of its members and their dairy products. It has moreover to act as intermediary for the purchase of material required by the dairying industry, as well as to carry on other activities compatible with these. It is the business of the association, in addition, to organise collaboration between members and to effect a price equalisation, to arrange quotas and restrictions in respect of cheese manufacture; to work for the scientific management of the dairying industry and for the improvement of the quality of dairy products. It has also to arrange propaganda with the object of increasing the sale of Swedish dairy products, to supervise the training of the staff of dairy establishments, to give the proper advice on the construction and equipment of dairies, to give attention to the unifying of systems of accountancy, of business analysis, of audit, of production statistics and of scientific working of dairies. In addition the Union is called upon to undertake price fixing and to give market information. In short, the Union has to be prepared, from all standpoints within and outside Sweden, to protect and represent the general interests of the dairying industry, and in collaboration with the other agricultural organisations, to promote the co-operative movement in agriculture.

Membership of the Union is open to all dairying organisations and dairying businesses of a certain importance, whether co-operative or otherwise, in so far as nothing is contained in their rules which is contrary to the general policy of the Union.

Every member is expected to take a share in the association of 50 crowns for each complete million kgs. of milk as weighed and of milk-equivalent of cream in the course of the last year of activity. Payment for the share will be made in cash up to 20 crowns and the remainder in instalments spread over three years.

Every member must in addition pay to the Union a fixed annual contribution the maximum for which will be 15 öre per 1,000 kgs. of milk as weighed on the farm of the member in the course of the previous working year. He must entrust to the Union the sale of the whole of his butter, all his milk and all the cream which he does not market in the area fixed by the Union for his activity. As guarantee of fulfilment of his obligations every member is expected, finally, at the time of his enrolment as member, to subscribe a guarantee bond of a value ten times the sum which he has paid on admission.

No member may withdraw from the association till after the completion of five years of membership.

At the general meeting which, *inter alia*, appoints the Management Council of from 7 to 11 persons, every member has a right to one vote for each share held. One place on the Council is reserved for the General Agricultural Society of Sweden. In addition to the general meeting and the Management Council, there is also an Administrative Council which will be called upon to give advice every time the Management Council has important questions to resolve. It consists of one member for each affiliated organisation.

Out of the profits made by the Union, at least 20 per cent will have to be placed to the reserve fund, until that fund reaches five times the initial share capital. If there is sufficient profit, and on a resolution passed by the general meeting, an interest of five per cent on paid up shares may be assigned; if any profits remain they should be used for the purposes of the association, or invested.

Before passing on to an examination of the work achieved by the Union for the accomplishment of its objects, mention should be made of the measures taken by the State in the course of 1932 and 1933 for regulation of the milk and milk products market, as the effecting of such regulation is one of the main objects of the Union.

As previously stated, the *Riksdag* of 1932 resolved to impose under certain conditions levies on milk, partly with the intention of thereby levelling the prices of fluid milk and of milk required for the making of dairy products (in this case a local charge), and partly in order to raise the prices for butter and cheese on the national market, thus rendering them independent of the prices that could be obtained on the export market (in this case a general tax). In other words, it was intended through the general tax, by guaranteeing the dairies which produced for purposes of export the same price for butter for export as for the butter sold within the country, to encourage them to continue with their export trade instead of entering into competition on the national market. It was on the other hand intended by means of the local charge to raise the price of milk sold for the manufacture of dairy products so as to avoid allowing the butter and cheese making dairies in general to enter into competition on the local

market with the better paid milk intended for direct consumption. The general tax was to be imposed on all milk placed on the market in Sweden, as well as on all the milk utilised by the producers themselves for the manufacture of cream, butter and cheese. The local charge was to be imposed on all milk and all cream marketed in the production zones of the centres of consumption, provided it was not intended for the manufacture of dairy products. The Government was empowered to grant authority, on special application, to impose and administer the general tax to any dairy organisation representing 60 per cent. of the milk supplied in the dairies of the country provided that at least two thirds of the members of these organisations, representing at least three fourths of the quantity of milk passing through all the dairies, signified approval. On the other hand authority to impose and to administer the local charges was granted only to an organisation representing at least 70 per cent. of the total quantity of milk sold in the district, and only on condition that the application for authority was supported by at least three-fourths of the membership, representing at least four-fifths of all the milk handled in the dairies affiliated to these organisations. A special Milk Commission was appointed by the State to supervise the observance of these provisions.

Authority to levy the general tax — fixed at first by the Government at 0.2 öre per kg. of milk and later at 0.4 öre per kg. — was granted in the autumn of 1932 to the National Union of Swedish Dairies which had already in respect of the extent of its operations fulfilled the conditions prescribed by the law.

On the other hand, the introduction of the local charge in the area of activity of the regional organisations, the dairy federations and the "amalgamated dairies," took much more time to effect, and accordingly the *Riksdag* of 1933 decided to abolish the measure relating to this charge and to replace the local charge by a general tax, levied at a maximum of 3 öre per kg. on all the milk sold, irrespective of the use to be made of it, as well as on all the milk used by farmers for butter and cheese making for the market. The new general tax is intended to fulfil the same purpose as the two former charges, and should thus make provision for the equalisation of the prices of fluid milk and of milk intended for manufacture of dairy products, such equalisation being in this way brought about independently of the success of the endeavours for organisation in the different districts (1).

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(1) The general tax is at present 2 öre per kg. for all milk and for the equivalent in milk of the cream offered for sale as also for all the milk used by the farmers for butter and cheese making for the market, in so far as the producer utilises for such manufacture at least 2,000 kg. per month of milk produced on his own farm. The tax is not applicable to milk produced and sold in certain distant parts of Sweden, nor to milk and cream produced on farms where there are not more than two cows and where milk is not sold to dairies or to dairymen, nor to milk sold to persons in the employ of the producer, etc. The sale of fluid milk, not subject to the tax, was estimated in 1934 at 200,000 metric tons (6 to 7 per cent. of all milk sold) and the quantity of milk exempt from the tax and utilised by the producer for butter and cheese making for the market, at 150,000 tons, or about 5 per cent. of all the milk directed to the market.

The efforts made by the Union for stabilising the price of butter on the national market and for making it independent of prices obtained by the surplus butter production destined for export—prices which were formerly decisive also for price formation in Sweden—have met with complete success up to now. While, for example, the export price of the "Run" mark butter varied in the Swedish ports in the course of 1934 from 98 to 167 öre per kg., and amounted on the average to 116 öre, it has proved possible to maintain the price for the whole country, fixed by the Union for this same butter, invariable at the desired level of 230 öre per kg. wholesale, and the milk levy has made it possible to compensate the exporters for the difference between this latter price—which they had to pay at the time of purchase—and the price they secured from their sales abroad (1).

The regulation of the butter market has not, however, merely taken effect in the direction of an increase in prices of butter and of milk intended for butter making, but it has also reacted favourably on the price of fluid milk, so to say, throughout the country, and on the price of milk utilised for cheese making. These prices apart from such regulation would have been bound to fall in consequence of the very low export prices for the surplus butter production. It is not possible to indicate exactly the losses that would have resulted from the price falls and which have been avoided thanks for the regulation of the milk, but the Union estimates these at from 3 to 4 öre per kg. at least for all the milk placed on the market, that is to say, at a total of about 100,000,000 crowns. This sum, after allowing for that part of the taxes that is utilised for butter regulation, represents a net profit of 80 to 85,000,000 crowns which is a contribution in 1934 to the milk producers of Sweden due to milk regulation.

In order to achieve the other purpose of milk regulation, *viz.*, the equalisation of the prices of fluid milk and of milk intended for making of milk products, the country has been divided into seven districts. The surplus remaining in each district from the tax on milk levied in that district is employed in the district itself for the purpose of bringing about this equalisation. The price equalisation subsidy allowed for manufacturing milk varies according to the proportion obtaining in each district as between the two classes of milk. The subsidy is

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(1) Up to 1 July 1934 the equalisation contribution taken from the fund of milk taxes was only paid for a part of the exported butter, up to 15,000,000 kg. per year, the equalisation of the prices for the quantities exported exceeding the figure indicated was financed by the tax on margarine which the *Riksdag* of 1933 had authorised the Government to impose, and which from 24 June 1933 had been levied at the rate of 20 öre per kg. On the other hand from 1 July 1934 the contribution to the equalisation of the prices of butter for export is levied half on the funds of the margarine tax and half on the funds of the milk tax, the first charge being on this latter. Thus, the larger the export of butter the smaller becomes the share of the tax on milk which remains for equalising on the national market the price of fluid milk and of milk for manufacturing. At present, therefore, more than before the interest of producers is to limit unremunerative exportation by reducing production and by encouraging measures designed to increase the consumption of butter in Sweden.

relatively high where a relatively high percentage of milk is sold as fluid milk, as for example in North Sweden, while it is lower where the percentage of fluid milk is less as in the most southern province of the country. The equalisation subsidy for manufacturing milk prices in 1934 reached for the whole country an average minimum of 1,802 öre per kg. in the month of March, and a maximum of 2,737 öre in December. This shows, taking into account what has already been said, *viz.*, that a general tax of 2 öre is levied on all milk intended for the market, that the milk produced in the month of March has been subject only to a net charge of about 0.2 öre and that in December the subsidy not only paid the tax but left over a balance of 0.7 öre per kg. for the producer.

As has already been said, one of the principal functions of the National Union of Dairies was to provide for the marketing of surplus products within the country and abroad. The marketing of these products within the country, which is directed towards the large centres of consumption and the north of Sweden, is carried out through a Central specially established by the Union for this purpose.

To facilitate the organisation of exports, the Union came to an agreement in 1932 with all the exporters of butter by which the latter undertook to buy and export surplus butter under certain conditions, and to a certain extent under the supervision of the Union. From 1935, however, the butter exporting firms, which were limited to three, were placed completely under the general direction and supervision of the Union. From this reform it is hoped to economise expenditure and to improve market conditions.

The Union had also in view the situation of the cheese market and for this purpose had started monthly statistics on the manufacture of cheese and on stocks of cheese in the dairies, thereby making possible a survey of the market conditions and at the same time indicating any occurrence of over-production, a frequent source, during the last few years, of falling prices and losses for the cheese factories.

To supply the necessary requisites to the dairies, the Union has organised a special section which now also furnishes the individual members of the dairies with the requisites necessary for the handling of the milk at the place of production. With a view to the scientific organisation of the various enterprises and to the simplification of the accountancy of the affiliated dairies, the Union, in collaboration with the General Agricultural Society of Sweden, has drawn up a suitable scheme of accountancy systems and organised courses on the subject for managers of dairies and chief accountants. With the object of estimating the output of the dairying industry, the Union, in collaboration with the General Agricultural Society of Sweden, also has made investigations into about 200 dairies, chiefly those in the south of Sweden which produce butter. This enquiry will subsequently be extended to all the dairies in Sweden.

Finally, it must be mentioned that the Union, in its work of propaganda for an increase in consumption of milk and milk products — which, as stated, constitutes an important part of the Union's programme — has already achieved considerable successes. The propaganda made in collaboration with the *Mjölpropagandan* (Milk propaganda), an association established in 1923 for the pur-

pose of extending the recognition of the true value of milk and milk products by means of educational propaganda for milk consumers, was previously directed towards increasing the consumption of butter, but is now chiefly concentrated on increasing milk consumption.

(*To be continued*).

H. LINDSTEDT.

## HAIL INSURANCE IN FRANCE

Hail insurance is practiced in France by three classes of institutions: limited liability companies, large mutual insurance societies and agricultural mutual insurance societies.

In 1934, the following companies and societies were practising this branch of insurance:

### (a) *Limited liability companies:*

- " L'Abeille, " founded in 1856 (capital, 4,800,000 francs).
- " La Confiance, " founded in 1878 (capital, 6,000,000 francs).
- " La Rurale, " founded in 1895 (capital, 4,000,000 francs).
- " La Protectrice, " founded in 1911 (capital, 10,000,000 francs).
- " La Nationale, " founded in 1920 (capital, 10,000,000 francs).

In the two last-named companies, hail insurance is only a subsidiary branch.

### (b) *Large mutual insurance societies:*

- " La Cérés, " founded in 1823 (reserve fund, 3,223,470 francs).
- " Société de Toulouse, " founded in 1826 (reserve fund, 10,759,110 francs).
- " Mutuelle de Seine-et-Marne, " founded in 1829 (reserve fund, 13,307,858 francs).
- " Etoile, " founded in 1834 (reserve fund, 8,560,727 francs).
- " Beauceronne Vexinoise, " founded in 1849 (reserve fund, 2,658,347 francs).
- " Mutuelle de Seine-et-Oise, " founded in 1854 (reserve fund, 1,128,360 francs).
- " Garantie Agricole, " founded in 1854 (reserve fund, 1,987,073 francs).
- " Régionale du Nord, " founded in 1896 (reserve fund, 505,190 francs).
- " Gironde, " founded in 1887 (reserve fund, 24,894 francs).
- " Ferme, " founded in 1887 (reserve fund, 191,319 francs).
- " Ruche, " founded in 1896 (reserve fund, 4,265,514 francs).
- " Mutuelle du Poitou, " founded in 1908-14 (reserve fund: those of other branches) (1).

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(1) *Argus, Journal international des assurances*, 19 May 1935, p. 703.



As to the agricultural mutual insurance societies there were 378 societies in 1928 with 11,837 members (1).

It would seem that the first attempt at insurance against hail in France was made at Toulouse where the " Société d'assurances réciproques contre la grêle " was founded in the year IX of the First Republic. In the year XIII insurance against the mortality of live stock was added to hail insurance, and afterwards insurance against fire; insurance against frost, floods and hurricanes was, on the contrary, excluded. In 1804 the " Mutuelle Grêle de Bergerac " was founded; in 1807 that of Mont-de Marsan. But these societies were not successful. Shortly afterwards the Toulouse society ceased to exist, to be revived again in 1926.

It may be of interest to give some account of the first serious attempt at State insurance in the nineteenth century. In 1857 the Minister of Agriculture submitted to the Council of State a bill for the establishment of a general agricultural insurance fund for the purpose of " compensating the farmers by means of a fixed and voluntary annual contribution for the losses caused to their crops and their live stock by hail, frost, flood and mortality. " But the Council of State rejected the proposal almost unanimously. It was then decided to establish a fund in the form of a limited liability company with a capital of a million francs under the name of " Caisse Générale des Assurances Agricoles, " the object being " the formation and management of mutual societies for insurance, on the basis of fixed contributions, against hail, frost, floods, the mortality of live stock and fire. " The decree authorising the establishment of the " Caisse Générale " made it obligatory for the company to present a detailed report on its operations to the Minister every year and to deposit its reserve fund in the " Caisse des Dépôts et Consignations; " the authorisation of the Minister was required for withdrawing any sum whatever from the reserve fund. But the affairs of this company did not prosper and it went gradually into liquidation: the fire insurance fund in 1862, the hail insurance fund in 1867 and live stock insurance fund in 1886 (2).

The oldest limited liability companies still existing in 1934 were " L'Abéille, " founded in 1856; " La Confiance, " founded in 1878, and " La Rurale, " founded in 1895. As to the large mutual societies, besides the Toulouse society there still existed societies the formation of which dates back to the first half of the nineteenth century: " La Cérès, " founded in 1823, " La Mutuelle de Seine-et-Marne, " founded in 1829; " L'Etoile, " founded in 1834 and " La Beaucheronne Vexinoise, " founded in 1849.

As to the small local societies, the origin of which, it would seem, can be traced back to the vocational mutual aid societies formerly founded by the corporations, they were formed in large numbers in the course of the first half

(1) *Annales de la mutualité et de la coopération agricoles*, January 1932, p. 34. Rapport au Président de la République française en date du 15 juillet 1931 sur le fonctionnement des sociétés d'assurances mutuelles agricoles en 1928.

(2) BLANCHON: *L'assurance mutuelle agricole*. Essai sur l'assurance corporative, 1935, p. 104.

of the nineteenth century in certain regions, notably in the Southwest, in the Pyrenees, in the East, and in Brittany and Vendée. But the creation of numerous mutual societies with a large area of operations for insurance resulted in an appreciable decline in the number of small local societies notably because of the importance of the large mutual societies, the work of which was based on a perfected insurance technique.

At the beginning of the second half of the nineteenth century these local societies again began to develop, profiting by the example given to them by the large insurance societies. However, another obstacle to their development made itself felt—their legal status. But first the Law of 21 March 1884 on vocational syndicates, the application of which in the domain of insurance was the subject of incessant discussions, and subsequently the Law of 4 July 1900, which gave a decisive and official interpretation to the Law of 1884, conferred considerable advantages on this type of society (1). As we shall see presently there were only twelve mutual agricultural societies for insurance against hail in 1898. In 1900 there were 16. But from this date onward they grow in number, reaching 24 in 1909. After the war several of these societies disappeared; there were only 12 in 1922. In 1923 the very important law on the constitution and working of mutual societies which apply for State subsidies was promulgated. Since that date there has been a constant increase in the number of these societies.

But the Decree of 1923, though providing for mutual societies as a whole, did not contain any special provision for hail insurance societies. In fact Article 30 of the law above mentioned stated that special decrees shall lay down the particular rules for the organisation and working of mutual societies for insurance against accidents, against hail and other weather risks, as well as the conditions under which subsidies may be granted to them. The legislative measures subsequently issued by the public authorities, which we shall examine presently in detail, give reason to anticipate that there will be a marked development in this type of insurance.

The legal provisions relating to insurance companies and large mutual insurance societies are to be found principally in the Law of 14 July 1867 which allows them to be freely formed but makes their establishment subject to various formalities and imposes rules of working which were set out in the Decree of 22 January 1868 regulating public administration, which was replaced by another Decree in Council of State dated 6 March 1922. Further, a very important Law, dated 13 July 1930, on the insurance contract has since imposed restrictions on the insurance companies in the matter of contracts. Details regarding these laws will be found in an article on live stock insurance in France (2).

(1) *Les dossiers du mutualiste agricole, Organe d'information et de documentation*, Paris, July 1933, p. 385.

(2) *Les dossiers du mutualiste agricole*, Paris, August 1933, p. 449. *Monthly Bulletin of Agricultural Economics and Sociology*, International Institute of Agriculture, May 1935. SUMNER: *Traité théorique et pratique des assurances terrestres et de la réassurance*, Paris, 1931, p. 97.

The legal system of the mutual agricultural insurance societies practising hail insurance is determined by: (a) the Law of 4 July 1900, by which these societies are exempted from certain conditions laid down by the Law of 24 July 1867 on societies and by the Decrees of 22 January 1868 and 8 March 1922 on insurance societies; (b) the Law of 21 March 1884 on vocational syndicates and the Law of 12 March 1920, except in so far as the provisions of this law are incompatible with the working of a mutual insurance society; (c) the Decree of 2 August 1923, amended by the Decrees of 26 January 1930 and 8 September 1933, on the formation and working of mutual agricultural insurance societies which apply for State subsidies; (d) the Law of 13 July 1930 on the insurance contract, in so far as its provisions are not incompatible with the special regulations regarding these societies; (e) the Finance Law of 31 March 1932 based on of Article 145 of the Finance Law of 30 December 1928 and a certain number of other legislative measures subsequently issued, of which the following are the most important: the Decrees of 22 October 1932, of 18 March, 10 May and 10 July 1933 on the application of the Law of 31 March 1932 (1).

We have examined in the article on live stock insurance in France already mentioned the Decree of 2 August 1923 which laid down provisions for mutual insurance societies of all kinds but did not contain any special provision for hail insurance societies, though it dealt with live stock and fire insurance societies. We will now examine the Finance Law of 31 March 1932 as well as certain provisions contained in the regulations issued for the application of this law. These measures had as their primary object to assist the farmers whose crops had been damaged by hail either directly or by placing at the disposal of mutual insurance societies handling this kind of insurance the sums necessary for extending their action and for facing calamitous years.

The Finance Law of 31 March 1932 (2) lays down that mutual hail insurance societies working in conformity with the provisions of the Law of 4 July 1900 can, with the authorisation of the Minister of Agriculture given after consultation with the National Agricultural Credit Bank, obtain from the regional agricultural credit banks formed in accordance with the Law of 5 August 1920, loans at a rate of interest equal to the rate of interest on loans for medium terms, but repayable within a period which may be as long as fifteen years.

These loans may, however, be granted to them only on condition that their area of operations embraces at least a canton and that they have reinsured 80 % of their risks either with a mutual society (departmental or regional) for the re-insurance of hail insurance risks, itself re-insured with a society covering the whole country or directly with a society covering the whole country and working under the terms of the Law of 4 July 1900.

The National Agricultural Credit Bank was authorised to allocate to such loans a sum of 50 million francs.

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(1) *Les dossiers du mutualiste agricole*, 1933, pp. 319 and 619. SUMIEN, *op. cit.*, p. 131.

(2) *Journal Officiel*, 1 April 1932.

Re-insurance societies of the first and second degree may also obtain the same loans under the same conditions.

The Law contemplated the establishment of a fund to guarantee, if required, the repayment of these loans to the regional agricultural credit banks; it is maintained by the following resources:

(1) Contributions paid by the mutual societies formed under the Law of 1900 in proportion to the amount of the premiums received and the indemnities paid. The rate of these contributions is fixed by decree. The contributions are compulsory for societies which desire to benefit by the provisions of the Law;

(2) Any subsidies that may be given by departments, communes, public institutions or private individuals;

(3) A State subsidy, the amount of which may not exceed, during each of the five first years of the application of this provision, the product of the resources previously set out. and, in subsequent years, a figure equal to the half of such resources.

Moreover, up to the amount of the subsidies of all kinds which they may have received from the State, the assets of any societies which may be dissolved must be paid to the guarantee fund.

The guarantee fund is administered by the National Agricultural Credit Bank under the supervision of a special committee appointed by decree.

If the borrowing society fails to pay, within three months of the due date, the annual charge due to the regional agricultural credit bank, this bank may receive an advance out of the guarantee fund, free of interest, up to a maximum of 80 % of the amount. The advance is granted by the Minister of Agriculture, after consultation with the National Agricultural Credit Bank. It is repayable as payments are obtained from the defaulting society.

Apart from the subsidy contemplated by this law and within the limits of the credit inscribed each year for this purpose on the budget of the Ministry of Agriculture, subsidies may be granted to mutual agricultural insurance and re-insurance societies

These subsidies may be either

(1) Direct subsidies by way of contribution towards the initial expenses of establishment and, further, to facilitate the formation of reserves.

These are allotted according to scales approved by decree, which take account of the effort made by the societies themselves to form reserves, of the local subsidies they have been able to obtain and, when required, of the amount of the losses.

(2) Supplements to the interest on the loans granted by the regional agricultural credit banks.

These supplements to interest can only be granted to societies which have been in existence for less than fifteen years at the time when the loan is made. They cannot, moreover, exceed 2  $\frac{1}{2}$  per cent during the first seven years of the loan nor 1  $\frac{1}{2}$  per cent. during the following eight years.

To be able to take advantage of these supplements to interest, the documents attesting the loans must state that they have been granted in conformity with the provisions of the Finance Law.

Further, out of the credit inscribed each year on the budget as contemplated by this law, a grant may be given to any person who proves that he had been inscribed on the register of the tax on total income for the preceding year as having a taxable income of less than 30,000 francs and who has taken out a policy of insurance against hail in respect of crops grown in districts where the risk is particularly severe; this grant represents a contribution by the State to his insurance premium.

The list of these districts with the indication for each of them of the rate of the grant to be given is drawn up by the Minister of Agriculture.

This subsidy is fixed in advance as a percentage of the capital assured. It is progressive according to the gravity of the risk. It is fixed every three years by a Decree of the Minister of Agriculture after consultation with the Committee for the Distribution of Grants at the Ministry of Agriculture.

After a period of five years from the promulgation of the law in question, failure to insure will involve the deprivation of all assistance and of all remissions of taxes for losses of crop on account of damage by hail.

Insurance is taken out either with a local mutual society working in conformity with the provisions of the Law of 4 July 1900 or with a private insurance company, the scale of premiums of which have been approved by the Minister of Agriculture.

Lastly this Law set up a Relief Fund (*Caisse de Solidarité*) as a provision against agricultural calamities.

Out of this Fund grants are given:

(a) to persons who have suffered losses in capital or in crops attributable to agricultural calamities contemplated by the Finance Law of 30 December 1928;

(b) As a transitory measure during a period of five years, to farmers whose crops have been damaged by hail but who are not yet insured in the conditions contemplated by the Finance Law.

The resources of this Fund have been formed, until such time as special funds have been assigned to it, by credits inscribed on the Budget.

The Law laid down that Orders of the Minister of Agriculture, approved by the Minister of France, are to fix the percentage of the subsidies to be given to persons who have suffered losses in proportion to the losses and within the limits of the available resources of the Bank.

This Law made important changes in the methods followed [up to then in regard to agricultural calamities whether in order to encourage hail insurance or to aid the victims of disasters due to the weather by the giving of grants.

A Circular of the Minister of Agriculture, dated 29 October 1932, drew the attention of the Prefects not only to the provisions of the Law but also to the desirability of taking steps with a view to the development of this kind of insurance. This Circular emphasises the fact that whereas the capital assured amounted to 8,000 million francs in 1932, this figure is inadequate if it is compared with the aggregate value of the crops threatened with destruction by hail, which reaches a much larger figure. It is necessary, therefore, to encourage as effectively as possible insurance against hail. In all the regions

where damage by hail attains serious proportions, it is desirable in the first place to promote the establishment of regional or departmental re-insurance societies in conformity with the provisions of Article 129 of the Law of 31 March 1932. The Circular adds that the prefects must not fail to point out to the interested parties, in order to induce them to form these societies or to join them in large numbers, that insurance against hail is all the more imperatively necessary as the relief grants would be progressively reduced in the course of the following five years and would then be suppressed as far as insured farmers were concerned, and that the same would be the case in regard to remission of taxes (1).

Under the terms of the Decree of 18 March 1933 on the organisation and working of agricultural mutual societies for insurance against hail which apply for State subsidies (2), agricultural mutual insurance and re-insurance societies, in order to obtain direct subsidies from the State must conform to the Law of 4 July 1900, to the Finance Law of 31 March 1932, to the Decree of 2 August 1923 as amended, to the Decree for the application of Article 134 of the Finance Law above-mentioned, and to the Decree of 18 March 1933 itself.

The same Decree lays down that the subsidies towards the payment of the initial expenses of formation which local societies can obtain must be fixed, having regard, in particular, to the number of members actually insured and to the amount of the subsidies obtained from the local administrative and other bodies and from individuals, in conformity with the scale appended to the Decree in question. The subsidies towards working expenses are fixed having regard to the number of new members actually insured in the course of the preceding year, to the amount of the contributions retained by the local society, to the balance of losses of which it assumes the risk, to the amount of local assistance obtained, all within the conditions fixed in the scale appended to the Decree.

The departmental or regional agricultural mutual societies for the re-insurance of hail risks can obtain subsidies towards the payment of the initial expenses of formation or towards working expenses on the conditions laid down in the scales appended to the Decree.

The mutual agricultural re-insurance societies of the second degree may receive subsidies from the State the amount of which is fixed by the Minister of Agriculture, after consultation with the Committee on Agricultural Calamities set up by Article 2 of the Decree of 22 October 1932, on condition that it only re-insures re-insurance societies which themselves conform to the provisions of the laws and regulations.

This Decree lays down that for a period of two years a franchise of at least 10 per cent. may be imposed on all assured persons. The same

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(1) *Annales de la mutualité et de la coopération agricoles*, Paris, November and December 1932, p. 669.

(2) *Journal Officiel*, No. 70 (23 March 1933).

decree rendered this franchise obligatory after the period of two years has expired.

The following is the scale of subsidies laid down by the Law of 18 March 1933 for the various insurance societies.

#### Scale No. 1.

Subsidies towards the payment of the initial expenses of formation and towards the establishment of a reserve fund payable to local agricultural mutual hail insurance societies.

- (1) 300 points for each communal society;  
400 points for each society embracing several communes;  
500 points for each cantonal Society.

- (2) 10 points for each member actually insured;

- (3) 10 points for each hundred francs of subsidies obtained from the General Council, from the Municipal Council or from any other public institution or from any individual as a free grant, up to a number of points not exceeding a tenth of the total number of points attributable under paragraphs 1 and 2.

No subsidy can be given to a society containing fewer than 7 members.

The maximum subsidy is 1,000 francs for communal societies, 1,200 francs for societies embracing several communes, and 2,000 francs for cantonal societies.

#### Scale No. 2

Subsidies towards the payment of working expenses payable to local agricultural mutual hail insurance societies

- (1) New members — 25 points for each new member actually insured during the preceding year;

- (2) Contributions retained by the local society — 5 points per 100 francs of contributions,

- (3) Balance of losses the risk of which is assumed by the local society — 10 points for each hundred francs of balance of losses,

- (4) 10 points for each 100 francs of subsidy obtained from public institutions or from private individuals up to a number of points not exceeding a tenth of the total number of points attributable under paragraphs 1, 2 and 3;

#### Maximum:

- (a) absolute maximum

	Vines	Cereals	Mixed crops
Cantonal societies . . . . .	1,500 fr	800 fr.	1,200 fr.
Societies embracing several communes . . . . .	1,000 »	500 »	800 »
Communal societies . . . . .	500 »	300 »	400 »

- (b) relative maximum: 20 per cent of the total contributions

#### Scale No. 3.

Subsidies towards the payment of initial expenses of formation and for the establishment of a reserve fund payable to regional agricultural mutual societies for the re-insurance of hail risks.

- (1) 3,000 points for initial expenses of formation;

- (2) 30 points for each member actually insured or re-insured;

(3) 10 points for each hundred francs of subsidies obtained from public institutions or from private individuals, up to a number of points not exceeding a tenth of the total subsidies.

#### Scale No. 4.

Subsidies towards the payment of working expenses payable to regional or departmental agricultural mutual societies for the re-insurance of hail risks.

(1) New members - 100 points for each member actually insured or re-insured since the last previous subsidy;

(2) Total contributions - 10 points for each hundred francs of total contributions paid by the assured persons;

(3) 30 points for each hundred francs of the balance of losses the risk of which is assumed by the society;

(4) 10 points for each hundred francs of subsidies obtained from public institutions or from private individuals, up to a number of points not exceeding a tenth of the number of points attributable under paragraphs 1, 2 and 3

Maximum for regional societies, 250,000 francs.

Maximum for departmental societies, 100,000 francs.

In any case, the subsidy cannot exceed 75 per cent. of the contributions received for reinsurance.

Minimum for all re-insurance societies, 3,000 francs.

As to the subsidies contemplated in Articles 134 and 135 of the Finance Law of 31 March 1932 in favour of certain farmers who are inscribed in the register of the general tax on income for a sum of less than 30,000 francs and have taken out insurance policies in respect of certain crops situated in regions where the risk of damage by hail is particularly severe, a Decree of 10 May 1933 (1) laid down the conditions of granting these subsidies, that is to say the share which the State contributes to the hail insurance premiums. Decrees issued every three years on the proposal of the Minister of Agriculture and after consultation with the Committee for Agricultural Calamities are to fix the list of the communes, where the risk assumes a calamitous character; these areas are divided into classes called stages (*paliers*) in the ascending order of the seriousness of the risk, in each of two large groups of crops: wheat and similar crops, and vines and similar crops. The first group comprises: (a) cereals (wheat, maslin, rye, oats, barley, winter barley, spelt, buckwheat, maize, sorghum, etc.); (c) natural and artificial meadows, forage plants (beet roots, potatoes and other tubers) madder and mulberry leaves. The second group includes vines and other crops. In each group and for each stage, the triennial decrees determine the maximum rate of the State contribution as a percentage of the capital assured, as well as the upper and lower limits of rate of premium or contribution to be applied. Special limits may be fixed for certain special crops. The farmers in question, in order to be able to claim the State contribution,

(1) *Journal Officiel*, 13 may 1933



must be regularly insured in a mutual insurance society, with limited liability or in the form of a limited partnership, working in conformity with the Decree of 8 March 1922, or in an agricultural mutual insurance society working in conformity with the Law of 4 July 1900, the Decree of 2 August 1923 and the Decree of 18 March 1933 and duly re-insured with a departmental or regional society working in conformity with the same law and decrees, itself re-insured with a society embracing the whole country, or, in the case of departmental or regional societies, with a society embracing the whole country.

The societies and re-insurance societies of the first type figure in a list fixed by Order of the Ministers of Agriculture and of Labour; those of the second type figure in a list fixed by Order of the Minister of Agriculture. The Orders in question must be issued after consultation with the Committee for Agricultural Calamities. At any time, Orders issued in the same form may modify the lists. However a society which has been inscribed in the list cannot be removed from it, except by its own consent or in case of urgency, after having been given the opportunity, with notice of at least 15 days, of being heard by the Committee for Agricultural Calamities, and the removal must be carried out by a special Order. To obtain inscription in the lists the societies in question must communicate to the Minister of Agriculture, solely in regard to the operations in respect of which the grants contemplated by the decree are given, the general conditions of their hail insurance policies as well as the hail insurance rates fixed, by stage and group, on the basis laid down by the triennial decree of which we have spoken. As long as the societies remain inscribed in the lists they are bound not to introduce any change into the policies or into the premium rates without the consent of the Minister of Agriculture. However changes in the scale of premiums, within the upper and lower limits contemplated by the triennial decree, in respect of the premium or the contribution in each group and each stage, may be made in case of necessity, provided the Minister of Agriculture is notified.

The same decree laid down that the policies or the rules must stipulate that the farmer must remain his own insurer for a small part of the capital assured, variable according the communes and the risk, according to the classification indicated and in conformity with the following table:

1st Group (Wheat and similar crops)		2nd Group (Vines and similar crops)	
Stage	Franchise	Stage	Franchise
I . . . . .	10 per cent.	I . . . . .	10 per cent.
II . . . . .	20 " "	II . . . . .	10 " "
III . . . . .	30 " "	III . . . . .	15 " "
		IV . . . . .	20 " "
		V . . . . .	25 " "
		VI . . . . .	30 " "

Every hail insurance contract signed prior to the publication of this decree, without franchise or with a franchise lower than that contemplated by the decree in question for the same stage and the same group of crops could be cancelled in 1933 as from the date of application, at the request of the assured person, on the condition that it was replaced by an analogous contract which conforms to the Decree in question. The franchise fixed in conformity with these provisions cannot be suppressed in any case or in any manner.

The Decree of 10 July 1933 fixed for certain communes the rate, as a percentage of the assured capital, of share contributed by the State to the hail insurance premiums and contributions, that of the compulsory minimum franchise as well as the upper and lower limits of the rates of premiums or contributions, for three years at the figures indicated below, according to the group to which the crops considered belong and according to the stage in which they are classed, by reason of the gravity of the risk in the communes indicated in the Decree:

Stages	Gross rates of contributions or premiums	Minimum Franchise	Reduction	Rate of the State contribution
	Percentage of the capital assured	Percentage	Percentage	Percentage of the capital assured
<i>1st Group (Cereals, etc.)</i>				
Stage I	3.50 to 5.00	10	15	0.75
" II	5.00 to 7.50	20	25	1.00
" III	7.50 and upwards	30	40	1.00
<i>2nd Group (Vines, etc.)</i>				
Stage I	8.00 to 10.00	10	15	1.00
" II	10.00 to 14.00	10	15	1.50
" III	14.00 to 18.00	15	20	2.00
" IV	18.00 to 24.00	20	25	2.00
" V	24.00 to 32.00	25	30	2.00
" VI	32.00 and upwards	30	40	2.00

The same Decree laid down that an Order of the Minister of Agriculture shall fix, by classes of crops, the limits within which the rates of premiums or contributions to be applied in each policy may vary, having regard to the rate of franchise adopted, and on the basis of the gross rate of contributions or premiums above indicated.

The number of classes of crops has been fixed at five (three for the first group and two for the second). The basic gross rates may, for the calculation of the limits within which tariffs can be fixed, be increased by as much as 100 per cent. for the second class and 200 per cent. for the third class (1st group).

According to the same decree, in 1933 in the second group only the assured persons of stages No. 2 and upwards could obtain the State contribution.

In conformity with an Order of the Minister of Agriculture dated 13 August 1933 the limits between which the rates of premiums or contributions to be applied in each policy may vary have been fixed as follows in the case where the franchise is the minimum allowed by the regulations. (1)

*1st Group.*

		Percentage
<i>1st Class :</i>		
Stage	I . . . . .	3.00 to 4.25
"	II . . . . .	3.75 to 7.75
"	III . . . . .	4.50 and upwards
<i>2nd Class :</i>		
Stage	I . . . . .	6.00 to 8.50
"	II . . . . .	7.50 to 11.50
"	III . . . . .	9.00 and upwards
<i>3rd Class :</i>		
Stage	I . . . . .	9.00 to 12.75
"	II . . . . .	11.25 to 17.25
"	III . . . . .	13.50 and upwards

*2nd Group.*

		Percentage
<i>2nd Class :</i>		
Stage	I . . . . .	6.75 to 8.50
"	II . . . . .	8.50 to 12.00
"	III . . . . .	11.25 to 14.50
"	IV . . . . .	12.50 to 18.00
"	V . . . . .	16.75 to 21.00
"	VI . . . . .	19.25 and upwards

For both classes, in case of acceptance by the assured person of a franchise higher than the franchise laid down by the regulations, the limits above fixed have been reduced in a corresponding proportion.

The principal crops to be insured have been placed in the various classes of the two groups as follows:

*1st Group.*

*1st Class.* — Wheat, millet and sorghum, madder, mulberry leaves, natural grassland; sainfoin, clover, lucerne, not grown for seed; sugar beet and beet grown for fodder, potatoes, with the exception of early potatoes.

*2nd Class.* — Rye, spelt, meslin, oats, barley, maize and rice, winter fodder cultivated exclusively for fodder.

(1) *L'Argus*, 27 August 1933.

*3rd Class.* — Buckwheat, rape, poppies, camelina and mustard, flax and hemp, beet, cabbage, radishes, carrots, onions, and parsnips cultivated for seed; beans, lentils, haricot beans, vetches, vetchlings, as well as peas intended to be gathered green; and other leguminous plants when cultivated for seed.

*2nd Group.*

*4th Class.* — Vines, hops and saffron.

*5th Class.* — Market garden crops, fruit, flowers, etc.

As to the relief grants which the Finance Law of 1932 assigns not only to persons who have suffered losses in capital and crops attributable to atmospheric calamities other than hail (frost, floods, windstorms) which are not covered by insurance, but also to farmers who have suffered losses due to hail, but are not yet insured under the conditions contemplated by the Law of 1932, the Circular of the Minister of Agriculture dated 29 October 1932, already mentioned, draws the attention of the prefects to the measures to be taken, and at the same time explains that the legislature deemed that it was necessary to allow farmers who had suffered losses by hail also to benefit during the period of five years, which must elapse before the practice of hail insurance could become general. It will be of interest to indicate here some of the measures taken in application of this part of the Finance Law of 1932.

The Decree of 13 October 1934 (1) on the grants assigned by the Relief Fund to the victims of agricultural calamities, which replaces that of 7 April 1933 in application of the Finance Law of 31 March 1932, lays down that a relief grant may be made to farmers whose taxable income, as it figures in the register of the general tax on income, for the year preceding that in which the loss occurred, did not exceed 30,000 francs, when their crops or their capital invested in agricultural production are damaged by windstorms, floods, frost or hail, under the conditions contemplated by the articles that follow. This grant can never become an established right for the person who has suffered loss; the making of it is always subordinated to the existence of credits voted by Parliament and placed at the disposal of the Relief Fund and to the amount of such credits.

The relief grants, when given in respect of standing crops, are applied for by the farmer, and the order is made out in his name; if the farmer is a tenant, the landlord is notified that the grant has been ordered.

When the grant is in respect of capital destroyed:

(a) If the capital in question consists of animal or vegetable products produced on the farm, of manures, etc., of furniture, of personal effects, of outdoor or indoor farm implements, or of live stock, the grant is applied for and ordered as above.

(b) If the capital damaged consists of immovable property such as farm buildings, soil, land and agricultural improvements, roads, permanent planta-

(1) *Journal Officiel*, 16 October 1934.

tions, forests, etc., the grants are applied for by the owner of the property and the order is made out in his name, subject to the rights, if any, of the tenant, who is notified that the grant has been ordered.

In the case of métayage, the grants may be applied for either by the métayer or by the landowner, or by both jointly, if the damage is to crops or to capital owned in common; the order is made out in the name of the landowner and the métayer is notified.

If, however, the income as it figures in the register of the general tax on income of only one of the two parties exceeds the maximum of 30,000 francs contemplated by the first article of the Decree, the other party receives, in respect of damage to property jointly owned, a fraction of the grant corresponding to his share in the products of the farm as determined by agreement or by custom.

The Ministerial Order of 18 October 1934 (1) replacing that of 13 April 1933 lays down that the relief grants set up in favour of the victims of agricultural calamities by the Law of 31 March 1932 (Article 136) and regulated by the provisions, outlined above, of the Decree of 22 October 1932 (Article 6) and of the Decree of 13 October 1934, shall be calculated within the limits of the credits voted by Parliament for this purpose, in conformity with the following provisions.

When the damages in question are damages to standing crops or to property of the kinds enumerated in paragraph (a) of Article 2 of the Decree of 13 October 1934, if the ascertained amount is less than 500 francs or less than 20 per cent. of the value, at the date of the damage, of the crops or of the property of the same kind in the farm that has suffered damage, no grant can be given. If, however, the total amount of the damages exceeds 15 per cent. of the average value of the whole of the products of the farm in a normal year, a grant may be given.

For the damages caused to immovable property contemplated in paragraph (b) of Article 2 of the Decree of 13 October 1934, if they are less than 500 francs or do not exceed 15 per cent. of the approximate selling value of the property forming the farm, they are not taken into consideration.

For isolated immovable property, plots of land, buildings, etc., not forming a farm, the minimum of 15 per cent. will be calculated on the approximate selling value of the whole of the immovable property devoted to agricultural purposes belonging to the same landowner in the same commune or in adjacent communes.

When, during the same crop year, a farmer has been successively the victim of several calamities, the damages caused may be accumulated and the farmer may be allowed to benefit by the relief grant if the total amount of the damages reaches the limits fixed as above.

The amount of the relief grant is calculated according to a uniform percentage, fixed each year by an Order of the Minister of Agriculture, issued on the recommendation of the Plenary Committee of Distribution, set up by

(2) *Journal Officiel* of 26 October 1934.

TABLE I. — *Statistics of the Operations of the Share Companies and Large Mutual Societies during the year 1934.*

Names of the companies and societies (In the order of date of formation)	Date of formation	Values assured	Premiums or contributions in 1934	Losses and costs of settlement	Surplus or deficit during the year	Reserve funds at end of 1934	Capital
<b>SHARE COMPANIES</b>							
L'Abeille . . . . .	1856	1,297,180,095	(1) 28,850,477	(2) 17,868,579	+ 2,439,750	16,786,000	4,800,000
La Confiance . . . . .	1878	524,082,359	8,737,892	3,516,189	+ 1,650,000	7,638,216	6,000,000
La Rurale . . . . .	1805	351,400,000	5,858,400	2,173,200	+ 3,685,200	(3)	4,000,000
La Protectrice (4) . . . . .	1911	62,153,840	1,735,574	653,263	(3)	(3)	10,000,000
La Nationale (4) . . . . .	1920	385,850,053	6,952,444	3,165,941	+ 2,200,763	(3)	10,000,000
Total . . . . .		2,620,654,347	52,110,787	27,377,172	+ 10,935,713	24,424,216	34,800,000
<b>MUTUAL SOCIETIES</b>							
La Cérés . . . . .	1823	153,332,500	1,737,772	493,315	+ 482,643	3,223,470	
Société de Toulouse . . . . .	1826	487,982,360	6,684,077	2,507,216	+ 2,730,139	10,759,110	
Mutuelle de Seine-et-Marne . . . . .	1829	183,794,310	1,812,133	244,690	—	13,307,858	
Etoile . . . . .	1834	270,728,700	4,404,090	1,855,592	+ 1,235,435	8,560,727	
Beauceronne Vexinoise . . . . .	1849	67,415,900	482,256	87,595	+ 242,484	2,658,347	
Mutuelle de Seine-et-Oise . . . . .	1854	73,815,200	397,770	79,883	—	1,128,300	
Garantie Agricole . . . . .	1854	36,743,300	363,041	75,324	+ 328,057	1,087,073	
Régionale du Nord . . . . .	1869	21,082,900	109,862	38,748	+ 80,132	505,190	
Gironde . . . . .	1870	5,039,794	137,926	71,445	—	24,894	
Ferne . . . . .	1887	89,537,656	1,880,127	1,127,093	— 38,657	191,319	
Ruche . . . . .	1896	42,371,745	575,162	44,019	+ 151,817	4,265,514	
Mutuelle du Poitou . . . . .	1908-14	10,553,903	139,269	15,364	+ 60,000	Those of other branches	
Total . . . . .		1,442,308,268	18,783,485	6,641,184	+ 5,272,050	46,611,862	
<b>SUMMARY</b>							
Compagnies par actions . . . . .		2,620,654,347	52,110,787	27,377,172	+ 10,935,733	24,424,216	34,800,000
Sociétés mutuelles . . . . .		1,442,308,268	18,783,485	6,641,184	+ 5,272,050	46,611,862	—
Total . . . . .		4,062,962,615	70,894,272	34,018,356	+ 15,307,783	71,036,078	

(1) To which must be added 24,204,494 francs for premiums accepted as re-insurance — (2) To which must be added 15,601,221 of losses on risks accepted for re-insurance. — (3) Not distinguished from those of other branches — (4) Hail insurance is only a subsidiary branch. To the premiums must be added those of other branches.

Decree of 22 October 1932, regard being had, on one hand, to the amount of the credits inscribed in the budget.

In any case, the grant assigned to any one person cannot exceed 20 per cent. of the total amount of the losses suffered by him during the year, nor be less than the sum of 50 francs.

When the calculation of the grant made in accordance with the uniform scale as indicated above gives a sum exceeding the minimum of 50 francs fixed as above but other than a multiple of ten, the amount of the grant will be rounded as indicated below:

(1) If the calculation of the grant results in a figure equal to or exceeding a multiple of five, the amount of the grant will be raised to the next highest multiple of ten;

(2) If the calculation gives a figure which is lower than a multiple of five, the amount of the grant shall be reduced to the multiple of ten next below.

When the damages have been caused by hail, the grant calculated in the manner just described was reduced by one-third in 1933 and 1934; it will be reduced by two thirds in 1935, by three fifths in 1936 and by four fifths in 1937.

TABLE II. — *Statistics of the Operations of the Share Companies and of the Large Mutual Societies during the last 46 years.*

Year	Losses	Premiums and contributions	Values assured	Ratio of losses to premiums %
1888	538,087,810	7,113,927	6,726,578	94
1890	602,834,132	8,044,770	5,655,384	70
1895	509,190,442	7,797,317	9,216,359	118
1900	634,960,908	8,897,943	6,714,908	75
1905	723,783,297	9,085,871	6,981,617	77
1910	918,886,532	11,779,914	7,607,373	64
1911	965,595,599	12,074,422	8,019,939	66
1912	1,011,828,865	12,769,102	8,240,589	64
1913	1,111,915,867	14,165,017	7,906,173	56
1914	1,043,503,005	14,414,013	7,188,368	49
1915	927,128,713	12,861,733	6,311,446	49
1916	938,510,419	13,501,365	9,850,359	72
1917	977,210,121	16,036,121	23,672,950	141
1918	1,621,729,265	23,775,121	14,755,418	61
1919	1,755,963,510	25,907,657	12,002,934	49
1920	2,869,436,723	12,083,563	20,066,036	62
1921	2,674,268,375	39,662,810	28,235,281	71
1922	2,707,988,343	43,687,466	19,469,258	44
1923	3,108,479,735	49,454,867	27,646,230	55
1924	3,178,800,209	53,243,900	40,349,436	76
1925	4,235,858,155	75,166,888	41,523,252	55
1926	5,313,732,201	98,997,019	50,056,310	56
1927	6,018,261,360	111,412,245	121,477,001	109
1928	6,256,102,847	117,927,254	91,289,945	77
1929	6,358,466,043	125,488,380	130,594,673	104
1930	5,722,192,048	117,391,643	84,081,439	72
1931	5,628,404,800	121,992,981	100,771,160	87
1932	5,886,394,157	124,711,999	59,773,774	47
1933	4,510,697,675	105,459,772	48,050,035	45

We give two tables (pages 383 and 384) one of which contains statistics of the operations of the share companies and the large mutual societies during the year 1934 (1) and the other contains statistics of the work of these companies and societies during the past 46 years (2).

In 1898, there only existed 12 agricultural mutual hail insurance societies. They had a membership of 16,812 and the capital assured amounted to 8,499,456 francs. In 1900, after the passing of the Law, there were 16 societies insuring 28,760 members for a capital of 13,841,656 francs.

The figures increase steadily up to 1909, in which year the maximum number of members, 47,337 is reached. There were at this time 24 local societies and the capital assured was 27,084,970 francs. This figure includes 7 departmental societies of tobacco-growers of which all persons who cultivate this crop are obliged to be members (3). During the war, the number of societies remained stable at 28, with 37,780 members and an assured capital of 31,524,892 francs.

Immediately after the war, several societies disappeared; in 1922 there were only 12 with a membership reduced to 14,461 and an assured capital of 17,892,444 francs. But from the following year a sharp reaction can be noted. The figures for 1923 are: 17 societies, 14,135 insured members, and 103,182,888 francs of assured capital. A new and very appreciable fall occurred in 1926, when there were only 6,451 members. A note explains that the decrease in relation to the preceding years results from the fact that in the previous statements a society not really on mutual lines (that of Dordogne) had been included. Moreover, in this same year a strong movement occurred for the formation of hail insurance societies, since the number rises in one year from 19 to 137. The following year there were 251, and in 1928 there were 379, with 11,237 members and an assured capital of 249,841,063 francs.

However, in view of the fact that Parliament, by the Finance Law of 31 March 1932, granted State financial aid on a large scale to the insured persons and assigned credits and subsidies to the insurance societies it is very probable that future statistical tables will indicate a remarkable progress (4).

F ARCOLEO

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[For some time a slow but steady change from liberal to managed economy has been particularly noticeable in Czechoslovakian agriculture. This movement is directed by Dr. Milan HOLZA, Minister for Agriculture, based on the numerous scientific

(1) *L'Argus*, 19 May 1935.

(2) *L'Argus*, 10 August 1934.

(3) VERMOREL, L'assurance contre la grêle, Paris, 1913, p. 10.

(4) BLANCHON, L'assurance mutuelle agricole, Paris, 1935, p. 147.



investigations made by the Czechoslovakian Academy of Agriculture and by the Institute for Agrarian Policy of that Academy.

The work by Dr. Reich contains all information, statistical and otherwise, which enables the reader to understand the structure of agriculture in Czechoslovakia and the conditions to which it should correspond in order that the principles of managed economy should be successfully applied.

The 1st part of this work refers to the natural conditions of production; the 2nd to economic conditions: politico-geographical conditions, transport questions, electrification, agrarian reform, etc.; the 3rd contains a study of prices and price fixing; in the 4th the writer discusses the individual as a factor in agricultural production and his interests from the social standpoint. The 5th part treats private organisation of agricultural production and contains several chapters on the areas devoted to different crops, on the influence of the size of farms, on the importance of live stock, etc. The 6th part describes the methods of farming; the 7th plant production; the 8th animal production; the 9th agricultural industries. The 10th part is devoted to origins and bases of progress in farming: agricultural research services, agricultural instruction, the agricultural press, agricultural organisations and co-operation, etc., in the 11th the writer describes the development and value of agricultural production in Czechoslovakia during the years following the world war.

In the conclusion of the work it is shown to what extent it is possible to apply a scheme of agricultural production and improvement so as to assure a return on farming and on the work of the peasants based on statistical information which allows a comparison to be made between the different provinces, regions, departments and communes. A chapter is devoted to the relations between agriculture in Czechoslovakia and foreign countries and also the International Institute of Agriculture].

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# MONTHLY BULLETIN

OF

## AGRICULTURAL ECONOMICS AND SOCIOLOGY

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### MEAT IMPORTS AND THE LIVESTOCK INDUSTRY IN THE UNITED KINGDOM

*(Concluded).*

It has been seen that in July 1934 the Government of the United Kingdom, since no permanent policy in regard to meat imports had been agreed as the result of any consultations during 1933, was by the Ottawa Agreements pledged (a) to arrange for the continuance of the regulation of imports of foreign meat at the rates in force for the period April to June 1934, and (b) "in any action affecting the imports of meat into the United Kingdom which the United Kingdom Government may take on behalf of United Kingdom agriculture," to have regard to the two objectives indicated in the Agreements, *viz.*, the maintenance and development of home production, and the granting to the Dominions of an expanding share of imports.

The statement issued by the Government of the United Kingdom on 11 July 1934, entitled "The Live Stock Situation," showed that the action taken since November 1932 in regulation of meat supplies, although followed by an appreciable improvement in prices of sheep, had not brought about the desired improvement in the prices of cattle, and there had in fact been a continued decline.

To indicate the extent of these movements in prices we give a table (page 390) in continuation of Table II, bringing the figures up to June 1934.

In the statement of 11 July 1934 the United Kingdom Government indicated as an important factor in the situation the difficulty of regulating with exactness the total imports of beef coming on the home market, making necessary the consideration of further possibilities of regulation. Of these possibilities that regarded by the Government as the best long term solution was, as already stated, a levy on imports for the benefit of the home producer, together with some degree of direct regulation of supplies in the interests of all suppliers.

It should here be noted, as forming, as it were, the general key to the negotiations that followed, that on the one hand the United Kingdom is by far the largest importer of beef, veal and cattle in the world, and that the South American countries are the main suppliers, while on the other hand the United Kingdom is also by far the largest importer of mutton and lamb in the world but draws supplies mainly from Australia and New Zealand. A further important feature in the situation

in respect of the consuming market has been the contraction of the demand for frozen beef, which is the main form of beef export from the Dominion countries, in favour of chilled beef with a tendency to replace beef as an article of consumption by mutton, lamb and pork.

TABLE IV. — *Prices of English Beef and English Mutton in each month from July 1932 to June 1934 (shillings per cwt).*

	Beef		Mutton	
	1932	1933	1932	1933
July . . . . .	78s. 9d.	66s. 6d.	71s. 10d.	81s. 8d.
August . . . . .	75s. 10d.	65s. 4d.	68s. 1½d.	75s. 8d.
September . . . . .	71s. 9d.	60s. 8d.	65s. 11d.	74s. 8d.
October . . . . .	64s. 2d.	61s. 3d.	64s. 2d.	74s. 8d.
November . . . . .	63s. 0d.	60s. 8d.	68s. 10d.	81s. 11d.
December . . . . .	75s. 10d.	60s. 7d.	76s. 7d.	82s. 0d.
	1933	1934	1933	1934
January . . . . .	74s. 8d.	68s. 7d.	85s. 8d.	80s. 11½d.
February . . . . .	71s. 2d.	67s. 1d.	83s. 8½d.	80s. 1d.
March . . . . .	60s. 1d.	65s. 1d.	91s. 7d.	82s. 8d.
April . . . . .	70s. 7d.	64s. 2d.	93s. 11d.	97s. 1d.
May . . . . .	67s. 8d.	65s. 11d.	96s. 8d.	114s. 4d.
June . . . . .	66s. 6d.	66s. 5d.	88s. 8d.	109s. 8d.

As illustrating the respective extent of the interests involved, it may be added that out of a total value of chilled beef imports in 1934 into the United Kingdom of £13,812,042 the share of Argentina was £11,674,995 and that of all British countries taken together only £380,794. On the other hand out of a total of £5,090,098 representing the value of the frozen beef imports over the same period, the share of Argentina was £1,160,312, that of Australia £2,051,900 and of New Zealand £1,127,032, while in respect of mutton and lamb out of total of £17,549,332 the share of Argentina was £2,312,995, that of Australia £4,168,872 and that of New Zealand amounted to £10,131,151.

As a dominating factor in the proposals put forward it may be recalled that under the existing Agreements, *viz.*, the Ottawa Agreements with the Dominions, and the Anglo-Argentine Trade Agreement, no levy could be imposed within the period of these agreements respectively, without the consent of the Governments severally concerned. In addition any regulation of imports presented problems of so serious a nature to certain of the Governments concerned that, in the opinion of the Government of the United Kingdom, it was essential to allow time and opportunity for further examination. Although in fact the Ottawa Agreement left

the Government free to regulate Dominion supplies as from 1 July 1934, the object of the United Kingdom was to arrive at an agreed programme and to avoid compulsory measures. Hence the action taken, following on the issue of the statement of 11 July on the "Live Stock Situation," was that of communicating proposals for discussion to the Dominion Governments, while they were at the same time informed—by way of reassurance—that as regards foreign suppliers, the following reductions, as compared with imports in the Ottawa basic year, would be made: for chilled beef, 10 per cent. for the first half, and 14 ½ per cent. for the second half of the third quarter, and 11 ½ per cent. in the fourth quarter; for frozen beef, veal, mutton and lamb, the 65 per cent. reduction of the imports of the basic year, as imposed for the period April to June 1934, would be continued.

Certain elements in the proposals thus communicated could not, in fact, fail to arouse serious concern among Dominion meat interests, more especially in Australia and New Zealand.

In the first place they marked the inauguration of a policy, so far deferred, of quota regulation of Dominion imports; in the second place, the restrictions on foreign supplies actually carried with them, so far as related to chilled beef, an automatic limitation of Dominion expansion of this export, since by the terms of the Anglo-Argentine Agreement, no reduction of more than 10 per cent. below the basic year imports could be imposed on Argentine chilled beef imports without a proportionate reduction in any Dominion supplies. The larger reduction imposed on Argentine shipments would thus involve a set-back to the efforts, to which much importance was attached, especially in Australia, at gradual replacement of frozen by chilled beef shipments.

In the third place, the proposals made clear the desire of the United Kingdom that any long term policy should include a levy on Dominion, as well as on foreign imports, for the benefit of the home producer, a proposal which, as will later appear, aroused very strongly expressed opposition on the part of Australia and New Zealand.

The reaction of the Dominions, especially marked in Australia, to the proposals of the United Kingdom, can be better understood by reference to Tables V, VI and VII which show the effects on imports of the policy pursued since the Ottawa Conference and the tendency towards expansion of the Dominion meat supplies to the United Kingdom since 1931.

Summarising these figures, the Ottawa basic year was a record in respect of Dominion supplies; during 1933 the level was on the whole maintained, and during 1934, with the expiry of the undertakings given respectively by Australia and New Zealand, the Australian supplies of all types of beef were steadily increasing, and there was a decided increase in New Zealand supplies of beef; in fact some 90 per cent. of the frozen beef imports were being supplied from the two Dominions.

On the other hand, although strenuous efforts were being made, especially in Australia, to develop the chilled beef export industry, the proportion of shipments from all British countries in 1934 remained less than three per cent. of the total shipments of chilled beef, *viz.*, 238,358 cwt. out of a total of 8,250,522 cwt., of which Argentina supplied 6,942,064 cwt.

In respect of mutton and lamb, however, the joint share of Australia and New Zealand in supplies to the United Kingdom had in 1934 increased to 80 per cent., as compared with 65 per cent. before the Ottawa Conference.

The protracted discussions that followed on the communication of the proposals to the Dominion Governments are proof alike of the intricacy of the questions involved, and of the cross-entanglement of interests, including those of the home producer, of the Dominion and other suppliers, and in part of manufacturers and others in the United Kingdom concerned in the trade with Argentina, and likely to be affected by curtailment of Argentine imports into the United Kingdom.

TABLE V. — *Imports of Chilled Beef (in cwts.)*

PERIOD	British Countries	Brazil	Uruguay	Argentina	TOTAL
July-Sep. 1931 . . . . .	—	153,001	174,175	1,918,220	2,240,296
Oct.-Dec. " . . . . .	—	3,798	125,971	1,984,485	2,114,254
Jan.-Mar. 1932 . . . . .	—	131,012	152,206	2,001,612	2,284,830
Apr.-June " . . . . .	—	261,822	156,578	1,781,588	2,199,988
July-Sep. " . . . . .	7,004	88,256	90,033	2,021,817	2,207,110
Oct.-Dec. " . . . . .	3,132	—	103,739	2,001,615	2,108,486
Jan.-Mar. 1933 . . . . .	2,488	118,450	133,165	1,795,194	2,049,297
Apr.-June " . . . . .	33,203	259,496	157,735	1,752,471	2,202,905
July-Sep. " . . . . .	54,027	139,431	160,653	1,676,729	2,030,840
Oct.-Dec. " . . . . .	55,068	—	108,432	1,720,859	1,893,850
Jan.-Mar. 1934 . . . . .	34,098	120,380	137,190	1,704,097	2,086,665
Apr.-June " . . . . .	51,011	251,291	182,713	1,689,839	2,174,854
July-Sep. " . . . . .	55,873	137,425	136,826	1,602,760	2,022,884
Oct.-Dec. " . . . . .	97,203	—	104,283	1,761,418	1,962,904
Jan.-Mar. 1935 . . . . .	69,359	121,284	143,544	1,798,422	2,132,609

Up to the end of 1934 consultations with the Dominions were carried out by correspondence, the object being (a) to arrange a programme for the first quarter of 1935 regulating imports of meat (including frozen pork) into the United Kingdom, and (b) to outline a long term policy. The actual trend of the discussions was not made fully public but the difficulty of arriving at a long term solution became increasingly apparent. It may serve to illustrate the general state of tension that considerable feeling was aroused in Australian meat circles by the report of a proposal, intended temporarily to ease the situation, for suspension from 15 November to 15 January, actually the slack export season, of the export of beef and veal.

The agreed programme for the first quarter of 1935 was at last published on 16 January and was as follows (page 395), the basis taken being the average of imports in the first quarters of 1932, 1933, and 1934.

TABLE VI. — *Imports of Frozen Beef (in cwt.).*

PERIOD	Australia	New Zealand	Other British Countries	United States	Brazil	Uruguay	Argentina	Other Foreign Countries	TOTAL
July-Sep. 1931 . . . .	438,098	70,753	(1)	8,970	(1)	41,100	110,419	(1)	731,303
Oct.-Dec. " . . . .	308,868	165,950	(1)	26,026	(1)	64,262	182,163	(1)	828,547
Jan.-Mar. 1932 . . . .	100,638	51,853	2,978	10,957	17,693	49,600	199,795	1,158	595,832
Apr.-June " . . . .	156,426	88,642	3,591	7,503	20,375	42,940	119,312	382	439,171
July-Sep. " . . . .	375,894	276,202	6,023	6,684	16,716	72,739	163,537	58	917,843
Oct.-Dec. " . . . .	259,273	162,184	12,116	17,222	43,929	31,954	172,797	3,129	702,604
Jan.-Mar. 1933 . . . .	170,623	79,425	14,078	7,500	21,204	39,781	268,703	16	604,330
Apr.-June " . . . .	200,245	224,129	12,144	7,132	29,767	18,485	159,313	5	651,220
July-Sep. " . . . .	447,737	326,022	24,389	11,042	46,229	29,735	127,307	—	1,010,061
Oct.-Dec. " . . . .	342,903	77,132	29,384	21,013	5,403	32,953	151,480	3,199	603,527
Jan.-Mar. 1934 . . . .	210,786	248,920	17,843	19,788	13,851	18,821	100,095	—	696,704
Apr.-June " . . . .	323,917	243,753	7,050	11,204	36,512	18,546	127,684	—	769,266
July-Sep. " . . . .	659,506	202,421	19,882	13,797	25,819	21,702	103,957	—	1,107,084
Oct.-Dec. " . . . .	379,863	179,662	62,626	33,528	8,094	29,773	145,868	3,638	843,052
Jan.-Mar. 1935 . . . .	185,563	144,589	30,444	16,770	15,107	17,180	161,920	9	571,582

(1) Separate figures not available. Imports from all countries other than Australia, New Zealand, United States, Uruguay and Argentina were 61,963 cwt. in July-September 1931 and 21,278 cwt. in October-December 1931.



TABLE VII. — Imports of Frozen Mutton and Lamb (in cwt.).

PERIOD	Australia	New Zealand	Other British Countries	Chile	Uruguay	Argentina	Other Foreign Countries	TOTAL
July-Sep. 1931 . . . . .	271,618	1,149,598	(1)	(1)	18,797	315,738	(1)	1,829,216
Oct.-Dec. " . . . . .	722,238	538,061	(1)	(1)	66,695	289,560	(1)	1,629,463
Jan.-Mar. 1932 . . . . .	315,071	790,930	—	—	75,434	439,355	16,418	1,637,208
Apr.-June " . . . . .	181,174	1,429,405	481	248,450	35,839	351,440	1,320	2,248,169
July-Sep. " . . . . .	123,335	1,258,478	240	51,518	33,717	346,140	2,681	1,816,109
Oct.-Dec. " . . . . .	536,454	436,992	328	610	18,700	248,785	20,892	1,262,761
Jan.-Mar. 1933 . . . . .	497,043	843,405	2,314	—	44,282	410,609	9,901	1,807,554
Apr.-June " . . . . .	271,003	1,249,016	—	102,339	42,101	307,704	2,171	2,064,334
July-Sep. " . . . . .	152,873	1,318,347	20	55,120	31,155	288,222	3,134	1,788,871
Oct.-Dec. " . . . . .	388,308	357,805	825	—	54,689	218,120	12,035	1,042,932
Jan.-Mar. 1934 . . . . .	455,105	772,793	—	—	39,231	319,674	12,546	1,586,773
Apr.-June " . . . . .	400,795	1,204,100	—	107,856	32,253	217,777	2,301	2,031,082
July-Sep. " . . . . .	352,600	1,076,343	85	50,423	4,592	211,161	2,204	1,697,468
Oct.-Dec. " . . . . .	410,426	502,201	157	—	62,314	174,498	13,492	1,169,178
Jan.-Mar. 1935 . . . . .	499,401	846,565	—	—	47,720	276,930	15,066	1,685,682

(1) Separate figures not available. Imports from all countries other than Australia, New Zealand, Uruguay and Argentina were 73,465 cwts. in July-September 1931 and 12,909 cwts. in October-December 1931.

	Beef and Veal cwt.	Mutton and Lamb cwt.	Pork cwt.
Australia . . . . .	187,000 (1)	450,000	16,700
New Zealand . . . . .	160,000	800,000	75,000
Canada . . . . .	19,250	—	8,600
Union of South Africa . . . . .	17,000	—	—
Southern Rhodesia . . . . .	51,000	—	—

(1) Including 30,000 cwt. of chilled beef.

At the same time it was announced that as regards foreign sources of supply, imports of chilled beef would stand at the level of 90 per cent. and imports of frozen carcase and boned beef, and of mutton and lamb at 65 per cent. of the quantities imported in the corresponding quarter of the Ottawa basic year. It will be seen that by so fixing the percentage for chilled beef, reduction of Dominion imports of this type of meat was avoided, at least for the time being.

It is presumed that this basis of the average of imports in the corresponding quarters of 1932, 1933, and 1934 is regarded as the basis for the quotas fixed for respective countries in the succeeding quarters of 1935.

It had by this time become evident that the discussions on the long term policy were not making satisfactory progress, at least in Australia. The Federal Prime Minister stated early in January in the course of a public address that "the Federal Government does not concur in any plan which destroys Australia's opportunities of continued expansion as a meat exporter to Britain." It was announced on 17 January that it had been agreed to postpone framing a long term policy for direct discussion in London with the Prime Minister and other Australian representatives who would leave Australia in February in view of the opening of the discussions in March.

On 6 March there was issued and communicated on the same day to the Governments of the Dominions and to the Government of Southern Rhodesia a "Statement of the Views of the Government of the United Kingdom," relating to the imports of meat into the United Kingdom. Reference was made to the statement issued on 11 July 1934 on the "Live Stock Situation" in which attention had been called to the decline in prices of cattle and to the position of the home producer of beef. It was indicated that the continuance of the situation was to be accounted for by the expansion of overseas production. It was further pointed out that it is an essential interest of the United Kingdom to maintain a substantial export of coal and manufactured goods to foreign countries, as not even the major part of these exports can be absorbed within the Empire, and in consequence an equivalent in imports from foreign countries must be maintained. On examining the effects of the reductions in meat imports arranged by the Ottawa and the Anglo-Argentine Agreements respectively, it appeared that in 1934, as compared with the Ottawa basic year, total foreign imports of all meat (not pork) decreased by 13.55 per cent. (1,581,000 cwt.), while total Empire im-

ports increased by 16 per cent. (1,123,000 cwt.), or a small net decrease of 456,000 cwt.; on the other hand, taking beef and veal, chilled and frozen, foreign imports had decreased by 9.64 per cent. (942,000 cwt.) while Empire imports had increased by 81.8 per cent. (1,338,000 cwt.), a small net increase. Hence in the case of beef, the various measures were merely palliative, and the further decline in beef cattle prices in the United Kingdom necessitated the continuation for a further short period of the present Exchequer subsidy under the Cattle Industry Act (1). It was stated finally that the Government had no intention of continuing the subsidy indefinitely, nor of acquiescing in the ruin of the home live stock industry. Hence the following is the statement of the policy proposed:

“(1) It is the firm intention of His Majesty's Government in the United Kingdom to safeguard the position of the United Kingdom live stock industry.

“(2) Having regard to the terms of the Ottawa and Argentine Agreements, the only practicable means at present available to them for this purpose is a drastic reduction of imports of meat into the United Kingdom from all sources.

“(3) If, however, the consent of the Dominions concerned, of Southern Rhodesia, and of Argentina can be obtained to the necessary variation of their respective Agreements, it would be possible to deal with the situation by the imposition of a levy upon imports of meat into the United Kingdom with or without a measure of supply regulation.

“(4) The policy which His Majesty's Government in the United Kingdom desire to bring into operation as soon as they are in a position to do so is to assist the United Kingdom live stock industry, according to the needs of the market, from the proceeds of a levy on imports (with a preference to the Dominions), overseas producers being left free to regulate their exports to this market themselves.

“(5) The question therefore arises whether with the consent of the Government concerned a levy should be imposed upon imports forthwith, as an alternative to the drastic reduction of imports which would otherwise be necessary.

“(6) If so, the following further questions arise:—

(a) Whether all import regulation should cease as from the date on which the levy comes into operation, or whether there should be a transitional period, after the imposition of the levy, during which a moderate degree of import regulation would be maintained.

(b) Whether the levy should be imposed on all meats or only upon beef, veal, and live cattle, bearing in mind that, in the latter case, a higher rate of levy may be necessary than if the levy were applied over the whole field of imported meat and that it would also be necessary to ensure that imports of lamb, mutton, and pork are adequately controlled.”

(1) It was recalled in this document that at the time of the passing of the Cattle Industry (Emergency Provisions) Act in 1934, it was intended that any payments made under its provisions should be recoverable from the proceeds of an eventual levy on meat imports.

It will be seen from this statement, that the United Kingdom so far modified the recommendations, in respect, that is, of the long term solution of the meat imports problem, as to urge a levy alone (with preference for the Dominions) instead of, as in July 1934, a levy "with some degree of direct supply regulation in the interests of the suppliers." In correspondence with Australia during the autumn of 1934 there had been reaffirmation of the July recommendation, and it appeared that reliance had been placed in Australia on the maintenance of this view on the side of the United Kingdom. This is the explanation of the wording of the Australian reply, received by cable in London on 7 March, to the "Statement" of 6 March, which was to the effect that "the Commonwealth is prepared to adhere to the previously expressed agreement to a levy on all meat imported into the United Kingdom with satisfactory preference to the Dominions, *provided that existing restrictions on foreign meat are retained*, but will not agree to a plan which will give the Dominions a  $\frac{1}{2}$  d. preference in the levy, but does not impose quantitative restrictions on foreign meat."

This reply clearly reflects the Australian apprehension of being insufficiently protected from competition from Argentina, where trading is facilitated not only by the shorter distance from the United Kingdom but also by a depreciated currency.

On 9 March the High Commissioner for New Zealand voiced the view of his country in a reasoned reply stating that New Zealand was unable to support voluntarily the principle of a levy in view of the fact that the meat exports of New Zealand mainly directed to Great Britain represent one fourth of the total exports. It was further pointed out that the problem in the United Kingdom relates to beef, while New Zealand's share in beef imports is not such as would substantially affect the situation. Consequently the imposition of a meat levy would inflict severe and undue hardship on the sheep industry, as the mutton and lamb producers would thereby be heavily penalised to assist in the solution of what is essentially a beef problem.

The New Zealand Government accordingly requested that the question should be submitted to a formal conference and expressed willingness to send representatives.

The situation in March 1935, pending the arrival of the Australian delegation, was thus that the United Kingdom was faced with a refusal on the part of the Dominions to waive their right to reject a levy, prior to the expiry of the Ottawa Agreement, or voluntarily to accept quota restrictions. On the other hand the United Kingdom was reluctant to exercise the right to impose restrictions in face of Dominion opposition.

The suggestion of a formal Dominions conference made by New Zealand was accordingly taken up, and a date fixed for the end of May, by which time the New Zealand representatives could arrive in London. Arrangements were also made for representatives of Canada, the Union of South Africa, and of Southern Rhodesia to take part. In the meantime discussions with the Australian delegates were to proceed as constituting a preliminary conference.

As regards opinion in Australia, it may here be noted that it was held in some circles that a certain measure of regulation of meat supplies might well be in the

interests of the suppliers. The maintenance of remunerative meat prices was seen to be as much in the interest of Australian as of British producers, and it was recognised that controlled supplies of lamb and mutton from New Zealand and Australia had undoubtedly lifted prices in 1933 and 1934 (1).

By this time the meat export trade in Australia was awaiting the announcement of the quotas for import into the United Kingdom during the April to June quarter. Endeavours had been made in Australia to have the mutton and lamb quota fixed substantially higher than the 450,000 cwt. of the first quarter of 1935. The figure first put forward was as much as 700,000 cwt., but in view of a dry season which affected supplies, 500,000 was later proposed. The quota was finally fixed at 450,000 cwt., shipments of the corresponding quarter of 1934 not having exceeded 405,000 cwt. On the announcement of this maximum, it proved that nearly nine-tenths of this quantity was already afloat for arrival after 1st April, as a higher maximum had been anticipated. Accordingly the Federal Government, to avoid risk of stoppage at ports in the United Kingdom, temporarily suspended further shipments of mutton and lamb due to reach the United Kingdom before 30 June. The total beef quota for April to June was at the same time raised to 331,000 cwt., no change being at first made in the quantity of chilled beef to be included, *viz.* 30,000 cwt. As shipments of chilled beef from Australia in excess of this quantity were already afloat to arrive after 1 April, a request was made to the British authorities to review this limitation and the question was referred to the approaching conference in London. It will be evident that this prolongation of a short term policy was causing serious inconvenience to the overseas meat shippers, especially in view of the late date of announcements.

The final agreed programme for the April to June quarter of 1935 may be shown in full as follows:

	Beef and Veal cwt		Mutton and Lamb cwt	Pork cwt
	Chilled	Frozen		
Australia . . . . .	(a) 56,000	(a) 274,000	450,622	15 538 (excl. baconers)
New Zealand . . . .	(a) 56,000	(a) 229,000	1,228,832	60,000 ( " " )
Canada . . . . .		4,500		1,220
Union of S Africa .	(b) 15,000	3,500	—	—
Southern Rhodesia .	(a) 36,000	(a) 9,000	—	—
Bechuanaland . . . .		(c) 7,500	—	—

(a) Frozen may be increased at the expense of chilled. — (b) Not including an agreed "carry-over" of 35,727 cwt., if required, from period to 31 March 1935. — (c) Not including an agreed "carry-over" of 6,500 cwt., if required, from period to 31 March 1935.

(1) The retail price of Australian mutton immediately prior to the 1932 Agreement was in Australia 2 ½d. and in Smithfield 4d. per lb.; in 1933 prices had risen to 4d. and 6d. per lb. on the respective markets, and have been maintained on this level.

On the arrival of the three Australian Ministers, a preliminary meeting was held in London on 25 March, and the first meeting for discussion of the problems was fixed for 1 April. The points for discussion were: (1) the short term policy, or the meat import programme for the second quarter, with special reference to the desired modification in the chilled beef quota from Australia; (2) a medium term policy to cover the period from 1 July to expiry of the Argentine Agreement in November 1936; (3) the long term policy after that date.

By 11 April the immediate question of the increase in the chilled beef quota for the second quarter was settled by raising the figure to 56,000 cwt. (included in total of 331,000 cwt.). The main concern of the Australian representatives was the definite extension of the possibilities of chilled beef importation into the United Kingdom.

Certain clauses, in fact, in the Anglo-Argentine Agreement act as a check on such expansion on the part of Australia, in that it had been therein agreed that while the United Kingdom might cut down Argentine imports of chilled beef by 10 per cent., this reduction could not be offset by imports from any other source, except in the case of the Dominions in the form of "reasonable experimental shipments." Since in Australia development of chilled beef exports on a commercial scale is much desired and, in fact, seems to be becoming a practical proposition, a wide interpretation, pending the expiry in November 1936 of the Anglo-Argentine Agreement, of the phrase "reasonable experimental shipments" was essential and was pressed for by the Commonwealth representatives at the discussions.

No definite steps towards framing a medium term, still less a long term policy, could be taken, in advance of the discussions to be held with the Dominion representatives as a whole. These discussions were opened on 21 May, immediately after the arrival of the New Zealand delegation, under the presidency of the Secretary of State for the Dominions. New Zealand and Australia were represented by members of their respective Ministries, Canada, Union of South Africa and the Colony of Southern Rhodesia by their High Commissioners.

Mutton and lamb imports were taken as the subject of discussion for the first ten days, postponing the beef question.

Although no decision was reached a concrete suggestion emerged to the effect that, since foreign supplies of lamb and mutton actually for the first quarter of 1935, amounted to not more than 10 per cent. of the total imports (as compared with 20 per cent. in 1934), this percentage should remain, and that an Advisory Committee should be appointed to regulate the rest of these imports as between Australia and New Zealand. It was arranged that the representatives of these Dominions should meet to discuss this proposal further.

Pending the renewal of the discussion of the more difficult question of beef imports, the Government made it known once more that it was not the intention to continue the cattle subsidy indefinitely, and that, in view of the fact of the continued decline in prices of fat cattle (now 33s. per cwt. as compared with 34s. in 1934 and with 44s. in 1932) the policy of the levy as outlined in March would stand. This may be taken as meaning that the United Kingdom intended

to renew efforts to obtain the consent of the Dominions and of Argentina to the necessary variation in their respective Agreements, and that it was hoped that in this way imposition of any drastic quota regulations would be avoided. With this object the Argentine Government was invited to nominate delegates to discuss the position with the United Kingdom Ministers. The Ambassador of Argentina to Great Britain, a member of the Argentine National Meat Council, and other experts already in London were appointed.

The discussion on beef imports was resumed on 29 May, and on that day a meeting took place between the President of the Board of Trade and the Argentine Ambassador. On 31 May fresh proposals were put forward by the United Kingdom Government, with the significant modification that together with the levy as before there should be regulation of imports by agreement among all supplying countries. It will be noted that this proposal, while differing widely from any scheme of imposed reductions, whether drastic or milder, also differs from the proviso as worded in the White Paper of 6 March, *viz.*, "overseas producers being left free to regulate their exports to this market themselves."

The discussions with the Argentina representatives in June were conducted privately, but it was understood that on the whole there was approval of the method above indicated of agreed regulation between all the supplying countries. Considerable satisfaction was caused in Australia by the statement that Argentina had consented to the proposal that the Dominions should be allowed to substitute chilled for frozen beef to the full extent practicable within the quotas, instead of "reasonable experimental shipments" only. As regards the levy proposals, it appeared probable that Argentina might agree to the levy if better quota terms could be offered up to November 1936.

It still remained doubtful whether the levy, when introduced, would apply to all meats, or to beef only, and to this uncertainty may be traced some of the difficulties in arriving at a long term policy. At the end of June it appeared that the Dominions were still holding out for a larger measure of preference, *viz.*, one farthing per lb. on Dominion meat as against 1 <sup>3</sup>/<sub>4</sub> d. on foreign meat. It has in fact been throughout the discussion the contention of the Australian delegation that while not denying the right of the United Kingdom to give first consideration to British producers, the Dominions should thereafter receive preference over the foreign suppliers. It has been pointed out, however, even in Australia itself, that such preference is only reasonable if the Dominions can supply a commodity as good—and in sufficient quantity—as the foreigner as regards beef. South American supplies of prime quality not only greatly exceed those of the Dominion in volume, but their regularity is guaranteed in a way which climatic and other conditions in Australia and in South Africa render impracticable at the present time, whatever may be the possibilities for the future.

As regards mutton and lamb it was subsequently made clear that no levy would be applicable in respect of New Zealand or Australian supplies, a decision which goes far to facilitate the attainment of a long term policy, although negotiations must inevitably be protracted in view of the extent of the interests involved.

It was recognised in July 1935 that it was improbable that the levy could be brought into operation before the expiry of the Anglo-Argentine Trade Convention in November 1936. Consequently it became essential to continue the Cattle Subsidy in any case to June 1936, at a cost of £3,000,000, and with provision for continuing up to 31 October 1936 at an additional cost of £1,333,000. The necessary authority was accordingly obtained for such extension.

Discussions and negotiations were thus finally concentrated on the medium term policy, or that of regulation of supplies of imported meat during the interim period, and especially of supplies from Dominion and other British countries.

On 15 July it was announced that an agreement had been reached in respect of the quantities of frozen mutton and lamb to be imported into the United Kingdom from Australia and New Zealand respectively during the last six months of 1935 and the whole of the year 1936. From 1 July to 31 December New Zealand will send 1,578,000 cwt., *i. e.*, the same quantity as was shipped in the corresponding period of 1934, and Australia will send 950,000 cwt., as compared with 768,000 in the corresponding period of 1934. During the whole of 1936 it was arranged that New Zealand would send 3,900,000 cwt. (in 1934, 3,555,000 cwt.), and Australia 1,750,000 cwt. (1,628,000 in 1934). It was however understood that, as regards 1936, provision would be made for adjustment in the light of later estimates of United Kingdom production and of the absorption capacity of United Kingdom markets.

The final arrangements in regard to the more complicated question of beef supplies from the Dominions and Southern Rhodesia were at last completed, but only in respect of the six months July to December of the present year. In regard to supplies of veal from Bechuanaland, a source of supply which has lately acquired importance, arrangements were also concluded.

The agreed programme of meat imports from the Dominions, Southern Rhodesia and Bechuanaland for the second half of 1935 may be shown in full as follows:

	Beef and Veal cwt		Mutton and Lamb cwt	Pork cwt
	Chilled	Frozen		
Australia . . . . .	(a) 160,000	(a) 990,000	950,000	28,700
New Zealand . . . . .	(a) 66,000	(a-b) 412,000	1,578,000	(c) 140,300
Canada . . . . .	108,400		200	14,300
Union of S. Africa . . . . .	30,000	4,000	—	—
S. Rhodesia . . . . .	—	91,000	—	—
Bechuanaland . . . . .	—	15,000	—	—

(a) Frozen may be increased at the expense of chilled — (b) Not including an agreed "carry-over" of 70,000 cwt., if required, from period April to June 1935. — (c) Excluding "baconers" for curing.



In connection with the imports of pigmeat, it may be added that in view of the increasing importance to Australia and New Zealand, especially to the latter, of the bacon export, in connection with the regulation of United Kingdom bacon supplies allocations of frozen pork for curing for the whole year 1935 have been made as follows: Australia 75,000 cwt., New Zealand 250,000 cwt.

There seems every reason to believe that the agreements reached are regarded as satisfactory by the Dominion suppliers, in particular by those of Australia and New Zealand, where the interests involved are of so vital a character to the prosperity of the farming population.

CAROLINE HUBBACK.

J. K. MONTGOMERY.

## AGRICULTURAL CO-OPERATION IN SWEDEN

*(Concluded)*

### 4. — CO-OPERATION IN SLAUGHTERING AND THE SALE OF SLAUGHTER STOCK.

Next to milk and dairy products live stock and meat are the most important products of Swedish agriculture for the market, and represent about one fourth of the gross return from agriculture. The annual production of meat has amounted in the course of the last few years to nearly 300,000,000 kg., two-thirds of which have been placed on the home market. In the course of the five-year period from 1929 to 1933 the annual excess of exports for beef has been 300,000 kg., for pigmeat 22,000,000 kg., and for slaughter stock 2,500,000 kg.

Till quite recently co-operative activity in pig marketing and in particular in respect of live animals and meat has been much less than that of private trade. It is true that in Southern Sweden the development of the co-operative slaughterhouses, after the foundation of the first of them in 1899, was somewhat considerable, and that the greater part of the bacon export was in their hands, but still in 1932, when there were about 30 of these co-operative organisations with a membership of nearly 50,000, not more than 40 per cent. of the marketable surplus of the pigs produced on farms passed through them, and hardly 3 to 4 per cent. of the surplus of beef for the market.

At the present time, however, the conditions of organisation of the meat and the pig market are completely different. The work undertaken in 1933, with the help of the State subsidy for reorganisation of this market, in accordance with the scheme prepared by the General Agricultural Society of Sweden and under its direction, had good results. At the beginning of 1935 there were 170,000 farmers organised in co-operative slaughter associations and co-operative associations for the marketing of slaughter stock, that is to say, in primary organ-

isations which in their turn were enrolled as members of a central organisation covering the whole country, constituted in July 1933, as the *Sveriges Slakteriförbund* (Federation of Swedish Slaughterhouses).

The work of organisation is not yet finished, but it may be said that in the territories of Sweden which have a surplus production, about 80 per cent. of the production of beef and pigmeat is organised already on co-operative lines under the direction of the Federation (1). When the organisation of the Federation is complete, it is calculated that its annual sales will amount to between 50 and 60 million kilogrammes, that is, to about a third of the total quantity sold by agriculture on the national market, to which must be added the sales by the affiliated organisations on their respective local markets.

*The Primary Organisations.* — The main function of these is to engage in the wholesale trade in slaughter stock with the object of centralising the demand and supply at a single point, so as to avoid competition between producers. There are as already stated two types of these: the slaughter associations which from the beginning have had their own abattoirs, and the associations for marketing of slaughter stock which for the moment at least utilise for the slaughter of their members' animals other abattoirs already existing in their area. No very strict line of demarcation can however be drawn between these two kinds of organisation. If a marketing association gradually finds it advantageous to establish its own abattoirs and if with this object it increases its initial share capital, the difference between such an association and one for slaughter of stock disappears altogether. The sole difference in principle between the model rules drawn up by the General Agricultural Society of Sweden for the two types of organisation is the difference in the provisions in regard to the initial capital which is naturally fixed at a much higher sum for associations owning their abattoirs.

The most important provisions for the slaughter associations in the model rules are as follows:—

Membership is open alike to individuals and to organisations which within the area served by the association are engaged in the production of slaughter stock.

On joining the association a member pays for one share for each animal under 100 kg. dead weight, and two shares for each animal over 100 kg. which he is in a position to deliver each year to the association. The shares vary between 5 and 15 crowns and must be calculated in such a way as to cover the

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(1) Apart from the *Sveriges Slakteriförbund*, to which all the co-operative slaughterhouses are affiliated, there are besides two other co-operative organisations of slaughterhouses: the *Foreningen skånska andelsslakterier* (Association of Co-operative Slaughterhouses of Skåne) founded in 1925 and including among its members 11 co-operative slaughterhouses of the most southern province of Sweden; and the *Svenska exportslakteriernas förening* (Association of Swedish Export Slaughterhouses) founded in 1932 and including 10 co-operative slaughterhouses operating for the export trade. This last organisation does not itself engage in trade, its sole object being the improvement of the quality of Swedish bacon for export and the consequent necessary inspection of the export of bacon.

installation costs of the slaughterhouse, which should be met mainly from the share capital, and so that the funds required for working may be obtained without having recourse to private individuals as guarantors for the sums borrowed. A part of the shares is paid in cash at the time of joining the association, the remainder is paid by means of certain deductions, usually 2 öre per kg. of dead weight on the payments made for the live animals (1). Each member is bound under penalty to deliver to the association all the cattle intended for the market, the horses and sheep and all pigs over 30 kg. in weight. Sales to persons employed on the farm, as well as sales to other buyers, are however also authorised, on obtaining permission in writing from the Council of Management and in accordance with conditions laid down by that body. A member may not allow animals to be consigned in his name to the association by third parties, nor may he deliver animals purchased less than 14 days before consignment, unless a special understanding has been reached on this subject with the association. It should be noted that the obligation to deliver does not hold at the time of a complete realisation of stock or at the time of sale of breeding stock. Proof however may be required from a member that the sale of a breeding animal has really taken place. Payment for animals consigned to the association is made on the basis of yield and of grade. Membership of an association may be resigned at earliest two years from date of joining; with the permission of the Government the association may extend this period to five years. At the general meeting of the association, which is the supreme authority and which, *inter alia*, elects the Council of Management, consisting of from 5 to 11 persons, each member has a right to one vote.

After payments have been made to all members for the animals consigned in the course of the year, 20 per cent. at least of the profit remaining must be placed to the reserve fund, up to the amount of the initial share capital. When this amount has been reached the placing of further sums in this fund depends on the decision of the general meeting. In addition, one per cent. at least of the surplus should be placed in an education fund after which the remainder will be distributed to the members or utilised for promoting the interests of the association.

The central organisation of slaughter associations and of associations for marketing slaughter stock, the *Sveriges Slakteriförbund* (Federation of Swedish Slaughterhouses) is also an association without personal liability. Its object is to promote the economic interests of its members by marketing, as required, their surplus production in slaughter stock and derivatives; to act as intermedi-

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(1) In accordance with the model rules for the associations for marketing slaughter stock, each member pays, as entrance fee, in proportion to the requirements in capital of the association, from 20 öre to one crown per hectare of arable land worked by him or of permanent pasturage, as well as 2 öre per kg. of dead weight of animals. After a member has paid this latter charge over at least five years and when the accumulated total of his payments amount to at least 30 times his entrance fee, the general meeting of the association has the right to decide whether he should or should not continue to make these payments.

ary for the purchase of requisites for the slaughtering business, as well as to carry out any other activity of similar kind. The terms of constitution of the Federation prescribe, *inter alia*, that the Federation is to determine the sphere of activity of each affiliated association, to effect a price equalisation for the purpose of maintaining the national price level on the slaughter stock market, to work for payment according to quality, for improvement in quality and inspection thereof, for a uniform system of accountancy, business analysis and audit. In addition the Federation is expected to issue market price lists, and in all possible cases to protect the interests of producers of slaughter stock, and, in collaboration with other agricultural co-operative organisations, to endeavour to promote the co-operative movement in agriculture.

Membership of the Federation is open not only to slaughter associations and associations for marketing slaughter stock, but also to private slaughtering enterprises, provided that the purposes of the Federation are furthered by their admission as members. Every member pays on joining the association a share for each complete 10,000 kg. of beef or of pigmeat or of slaughter stock, calculated in dead weight, sold in the course of the last year of activity. Every share is for 20 crowns of which 5 crowns are paid in cash at the time of joining and the remainder in annual instalments of 5 crowns over three years. To cover the general expenses of the Federation such as are unconnected with its trading activity, every member must, in addition, pay an annual subscription fixed by the general meeting. This payment is not to exceed one öre per kg. of dead weight of beef or pigmeat or of slaughter stock, reckoned on dead weight, sold in the course of the previous year by the member.

As regards the duties incumbent on an affiliated association, the terms of constitution prescribe that surplus products which cannot be marketed in the area of activity of the association as fixed by the Federation, must be transferred to the Federation for export or for sale on the national market as decided by the Federation. If a member is guilty of any non-observance of this obligation or of the rules published by the Federation in respect of price equalisation, etc. the Council of Management may call for full or partial payment of the guarantee which each member has had to give the Federation for twice the amount of his share.

Membership of the Federation may be resigned at earliest only after two years from the date of joining; with the permission of the Government the Federation may prolong this period to five years.

Territories with joint interests have been grouped in districts by the Federation. Members assigned to a certain district have the right to one vote at the district meeting for each share which they have paid up to the Federation.

Among the main functions of the district meeting is the election of the District Council consisting of president, vice-president and district secretary. This council is expected to constitute a link between the members and the management of the Federation, to follow up activity in the district, to make proposals as to elimination of any faulty working, and to assist the management of the Federation in its work of propaganda and education.

The general meeting is the supreme authority of the Federation, and, *inter alia*, has to elect the Council of Management, consisting of from 7 to 11 persons; at this meeting each affiliated member has the right to one vote per share paid. As supporting the Council, when more important questions come up for consideration, there is an administrative council consisting of the presidents of the district councils referred to above.

In regard to disposal of the surplus profits of the Federation, the terms of constitution establish that at least 10 per cent. shall be placed to the reserve fund, until a sum equal to the initial share capital has been reached. It then depends on the general meeting of the Federation to decide if further sums are to be placed in this fund. If there is sufficient profit, it will be possible, on decision of the general meeting, to pay up to 5 per cent. interest on the shares fully paid up and after that the remainder may be constituted as a fund or used directly for the objects of the Federation.

The Federation of Slaughter Associations was formed, as already said, in July 1933, but did not begin working till the beginning of 1934 and in consequence has still not been able to effect much of its programme, its energies being mainly concentrated on increasing the membership. In the course of 1934, however, the Federation began to market pork and beef on the Stockholm market and in 1935 it has initiated a similar activity in the North of Sweden and in Gotenburg, and brought into operation a uniform system of payment, of classification and of price quotation throughout the country.

#### 5. — CO-OPERATION IN THE EGG TRADE.

Egg production is the principal object of poultry-keeping in Sweden while the raising and fattening of poultry are of secondary importance. The greater part of the poultry slaughtered consists of hens which have ceased to lay and of cockerels. The present production of eggs, from about 6,000,000 hens in the country, is estimated at a total of 35,000,000 kg. per annum, 20,000,000 of which are sold, chiefly on the national market. The quantities exported vary considerably, but generally amount to from 2 to 5,000,000 kg. per annum. The total value of egg production is at present estimated at about 35,000,000 crowns and the value of poultry production at about 5,000,000 crowns.

The first local associations for the marketing of eggs were founded about 1880 and, at the same time, an association for the export of eggs. Towards 1890 the tendency to form associations declined, but received another impetus during the course of the first ten years of the present century. The success of the movement, however, during the following 20 years did not correspond with the efforts made and, in 1929, the 250 associations existing in the country retained about 14 per cent. only of the total egg trade.

During the last four or five years, however, remarkable progress has been made, also in this branch of agricultural co-operation in Sweden. In accordance with the regulations drawn up by the General Agricultural Society of Sweden and under its direction, an important work of reform was undertaken in 1930

with the aid of State subsidies (1) and the support of other agricultural organisations the result of which was the establishment of a large number of new local associations for marketing eggs and regional organisations grouping these associations (egg centrals). A national organisation, the *Svenska Ägghandelsförbundet* (Swedish Egg Marketing Federation) was also formed grouping the local associations and centrals. The *Ägghandelsförbundet*, which at the time of foundation in September 1932, included 5 centrals representing 15,000 producers, at the beginning of 1935, had 17 affiliated centrals with a total membership of 30,000 producers. The quantity of eggs available to the Federation in 1934 amounted to about 5,000,000 kg.

The following regulations, taken from the model rules drawn up by the *Sveriges Allmänna Lantbrukssällskap* for the use of the organisations, may give an idea of the organisation and working methods of the local egg marketing associations.

The principal object of the *local associations* is to collect and pass on to the centrals the eggs and slaughtered poultry of their members. On joining an association the member makes a cash payment of 2 crowns. His obligations include delivery, at the time and place indicated by the Council of Management, of all eggs produced by him for the purpose of sale (with the exception of sittings of eggs) and to deliver only eggs that are fresh, clean, unbroken, not more than one week old and duly marked with the number assigned to him. He is also expected to collect the eggs several times per day. The eggs are paid for in cash on delivery. The member may resign at the earliest from the association two years after the date of joining. At the General Meeting, the supreme authority of the association which, *inter alia*, elects the council of management composed of three members, each member present has the right to one vote. After the costs of expenditure have been covered, a maximum of 0.5 öre per kg.

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(1) In addition to the subsidies granted for organisation, the Swedish Parliament decided, in 1934, that, in order to encourage egg production, imports and exports of eggs could not be permitted without special authorisation and, in respect of importation, that the payment of a licensing fee of 30 öre per kg. should be made compulsory. The restriction on importation came into force on 1 March 1934. Furthermore, the Parliament of 1934 decided, in order to encourage export and to raise the level of the prices obtained by the producers on the national market, to introduce, as from 1 June 1934, supplementary payments on eggs exported. These will be drawn from the proceeds of the licence tax above mentioned and from a part of the proceeds of the taxes on concentrated foods and on bran, as well as from the proceeds of the import duty on maize, oats and other fodder. The payment of the supplementary payments on eggs exported has been entrusted to the *Sveriges Äggintressenters Förening* which, during 1934, had paid an export premium of 20 to 30 öre per kg. on eggs exported by its members and one of 5 öre (since 7 December 1934 2 öre) less on eggs exported by non-members.

The *Sveriges Äggintressenters Förening*, which must not be confounded with the national organisation of egg centrals mentioned above, was established in 1934. Its object is to promote the economic interests of the members by working for an improvement in egg marketing conditions, but it does not itself engage in marketing eggs. At the beginning of 1935 the number of affiliated members included several egg centrals and co-operative consumers' societies. The Government appoints two representatives to the council of management.

of eggs is deducted from the annual profits and placed in the reserve fund up to the amount of 10 per cent. of the turnover of the preceding year. The remainder of the profits are afterwards distributed among the members in proportion to the weight in eggs supplied by them during the course of the year.

In accordance with the model rules, the objects of the *egg centrals* are to market eggs and other poultry-keeping products of their members, to organise co-operation between the members, to institute packing and warehousing stations and establishments for fattening and slaughtering poultry, to effect uniform payment according to quality, to purchase the necessary poultry-keeping requisites for members, and to promote the interests of the members and the co-operative movement in general. Membership of the egg centrals is open to the egg-marketing co-operative associations and other egg marketing bodies; also, when considered advisable, to private persons who can supply at least 1,500 eggs per annum from their own production. The members take up a share of 20 crowns for each 2,000 kg. of eggs sold during the last working year, one fourth of the share being paid in cash on joining the association and the remainder being paid in yearly instalments of 5 crowns. These instalments are either paid directly or the amount is deducted from the payments made for eggs supplied. Members are expected to deliver all their eggs for sale to the central, but a member may be authorised to sell on the local market under conditions fixed by the council of management. A member may resign from the egg central two years, at the earliest, from the date of joining. At the General Meeting, which elects the administrative council of the egg central, each member has the right to one vote for each share taken up, but the number of votes of any member cannot exceed one fifth of the votes represented at the Meeting. The administrative council elects the council of management of the central and assists the latter when questions of greater importance must be decided. Before making additional payments for the year, at least 0.5 öre per kg. of eggs supplied and at least 10 per cent. of the remainder of the net profit will be placed in the reserve fund up to the amount of 10 per cent. of the turnover of the last working year. The General Meeting subsequently decides if further deposits should be made. If the surplus is sufficient, the General Meeting may decide to pay 5 per cent. interest on the initial capital. A further surplus may be constituted in a fund or paid to members in proportion to business done by them during the course of the year.

The *Svenska Ägghandelsförbundet* (Swedish Egg Marketing Federation) is the central egg marketing organisation. Its object, in accordance with the model rules, is to market eggs and other poultry keeping products on behalf of the members, to improve the quality of the products and to carry out propaganda for rationalised egg production and an increase in the consumption of eggs. On the other hand, the Federation is not engaged in the choice and packing of eggs which are in the hands of the egg centrals. The co-operative egg marketing centrals may become members of the Federation, also other organisations, of a certain importance, for marketing eggs and poultry. Members take up a share of 100 crowns for each 10,000 kg. of eggs and poultry sold

during the previous working year. Payment is distributed over 5 years at the rate of 20 crowns per annum. A member may resign at earliest 5 years from the date of joining. The member is expected to deliver to the Federation all the eggs and poultry not sold on the local market assigned to him by the council of management of the Federation. The member cannot sell, without the consent of the said council, eggs and poultry to persons or organisations likely to sell them, either directly or through intermediaries, outside his own local market. In addition, the member cannot buy eggs from a person or organisation not affiliated to the Federation without previously obtaining the permission of the council of management and under conditions fixed by the council. The council of management has the right to examine the accounts and business correspondence of the members for the purpose of supervising the observance of the above obligations and others. Any member who has sold products contrary to the provisions contained in the model rules must pay compensation to the Federation up to 20 per cent. of the value of the merchandise sold. The Federation pays its members a flat rate for eggs, regardless of whether the eggs are sold on different markets and at different prices, taking into account, however, the situation of the various associations in relation to the more important markets. At the General Meeting each member has the right to one vote and an additional vote for each complete 10,000 kg. of eggs and poultry sold during the course of the last working year. The General Meeting elects the council of management, composed of 7 to 15 persons, which in its turn appoints an executive committee of at least 3 persons. Before paying a member for merchandise supplied, 0.25 öre is deducted for each kg. of eggs and poultry and placed in the reserve fund up to the amount of 100,000 crowns and a further 0.25 öre is deducted and placed in a regulation fund, also up to the amount of 100,000 crowns. At least 10 per cent. of the annual profits are placed in the reserve fund, after deducting necessary mortgages, up to the sum of 100,000 crowns. If the profit is adequate, the General Meeting may decide to distribute 5 per cent. as interest on the initial capital and the remainder may constitute a fund or be distributed to members in proportion to the payments made for merchandise supplied during the course of the year.

Considerable progress was made during 1933 and 1934, which latter must be considered only as the second year of the Federation's activity as it did not start working until September 1932. The number of affiliated egg marketing centrals increased during the year 1934 from 8 to 16 and the quantity of eggs purchased and sold increased by about 34 per cent. in relation to the figures for 1933 and reached the amount of 4,800,000 kg. Exports of eggs by the Federation increased considerably, that is, by 82 per cent. compared with the preceding year and, in 1934, represented about 35 per cent. of the total export from Sweden, while in 1933 the figure was only 20 per cent. The greater part of the eggs which are not exported or sold by members of the Federation on the local markets, are sent to Stockholm and to Northern Sweden, where the supply is insufficient. A quality mark, "the crown mark," has been introduced by the Federation for particularly high quality eggs.



## 6. — ACTIVITY OF THE AGRICULTURAL CO-OPERATIVE BANKS.

Mortgage credit requirements and credit for current cultivation needs are met in Sweden mainly by the savings and trading banks, as well as, since 1916, by the agricultural co-operative credit societies, or agricultural banks. The development of these bodies was however for a number of years very slow, largely owing to the over rigorous measures which regulated their activity, in accordance with the original text of the law of 1915. Hence it was, for example, that at the end of 1929 the number of agricultural banks was only 175, grouped in five Central Banks, with a total membership of between 12,000 and 13,000 members, and credits issued for a total of 14,000,000 crowns in round figures. It was only after 1930 that the movement acquired vital importance, when the *Riksdag* resolved to establish a joint central organisation, the *Svenska Jordbrukskreditkassan* (Agricultural Credit Bank of Sweden) for the Central Banks of the country. Subsequently other radical changes were effected in the course of the following year in respect of the rules in force up to that time. At the end of 1934 the number of local banks had risen to 699, the number of affiliated members to 59,000 and the total amount of credits granted to nearly 43,000,000 crowns.

The function of the *local agricultural co-operative banks or credit societies* is to procure loans for their members for productive purposes, *e. g.*, for the purchase of means of production, minor improvements of lands and of forest plantations, construction of small buildings, installations of water conduits and of drains, methods of manure conservation, etc.; further in their capacity as representing the Central Bank to which they are linked, to collect the savings of the farmers for deposit in the Central Bank. The area of activity of a local bank is usually limited to a single commune. The larger communes may however be subdivided between several such credit societies, and also several small communes may be grouped under one society. This limitation of the area of activity of these banks is due to the assumption that the farming capacity, etc., and the economic circumstances of each member may be well known to the other members. The minimum number of affiliated members is 15. Membership is open to all Swedish citizens, whether farmers or not, and also to limited companies registered in Sweden undertaking some form of agricultural activity. Any person owning an agricultural estate situated in the area of activity of the bank may subscribe at most to one share for each complete 500 crowns of the value of the estate as fixed as basis of shareholding. If the estate is let, the owner and the tenant may each subscribe at most one share for each complete 1,000 crowns of the value stated. As basis of shareholding, the agricultural value of the estate is reckoned according to the assessment in force for taxes unless some other value is fixed by a special estimate made by the Central bank. Estates on which horticulture, poultry-keeping, fish-breeding or other similar activity is practised as an independent industry are equally regarded as farms, or agricultural undertakings. As the shareholding value in these cases the assessable value in force is reckoned. Members not owning or cultivating

land, and not exercising any of the independent activities of the kind above indicated, may subscribe one share only.

The payment due from members amounts to 5 crowns for each share subscribed. Of this total outlay two crowns at least must be paid in cash for each share, and the remainder during three years from the date of subscription. If the member obtains a loan from the Society the whole of the amount due will be paid at one time, or must be deduced from the sum lent. Of the total thus subscribed 3.50 crowns per share must be considered as initial capital of the agricultural bank, 50 öre per share will be utilised as contribution of the bank to the central bank to be placed in its guarantee fund, and one crown per share will be transferred to the reserve fund of the agricultural bank. On resigning membership a member receives only 3.50 crowns, or 70 per cent., for each share subscribed and fully paid up.

Members are liable for engagements made by the agricultural bank up to a sum of 50 crowns per share, and they are expected to submit to the charge, as may be fixed by the general meeting of the association for meeting any losses not covered by the existing reserve fund, such charge however not to exceed 10 crowns for each share calculated yearly.

As regards the constitution of the fund, it should be stated here that formerly the process was a very slow one, but that in accordance with the reforms recently adopted it will now be much more rapid. After deduction from the annual profit of the sums required to cover any deficits, at least 75 per cent. will now have to be placed to the reserve fund and only after that fund amounts to at least 20 per cent. of the maximum total of members' borrowings, will it be possible to make a transfer of less than 75 per cent.

The local banks obtain their working capital, apart from the amounts subscribed by members, by means of borrowing from the Central Bank, and they cannot, without authorisation from the Council of the latter, obtain loans in another credit institution. Since 1930 the local banks do not have their own deposit service, but may act as intermediary for deposits at the Central Bank. Local banks grant loans to those only of their members who own, or work a farm estate, or who practise horticulture, poultry-keeping or other analogous activity, as an independent industry. The maximum fixed for loans is 200 crowns per share paid up, but any persons owning an estate can obtain credits against mortgage of 60 per cent. of the agricultural value of the property, in accordance with the land tax in force. The bank may either make loans in the form of advances on mortgage security, personal security or pledge of cereals stored in warehouses or with the producer; or may act as intermediary for borrowing transactions by bill of exchange or by granting credits on current account, open to the competent central bank by the intermediary of the bank in the name of the member. The making of loans on the security of bills of exchange is effected by discounting bills issued or endorsed by the member in question, at the central banks. In the course of recent years, there has been a relatively large expansion of loans on pledge of cereals and these have been much used by members.

The agricultural bank receives from the State both organisation grants of 100 crowns at most and administrative subsidies of 4 crowns per year and per

member in the course of the first years after the formation of the bank, of two crowns per year and per member in the course of the subsequent period of five years, and of one crown and 50 öre in the course of the subsequent two five year periods.

For the administration of the business of the bank each bank must have a Council of Management elected by the general meeting, consisting of from three to seven members. The Council will meet at least once monthly and on dates fixed in advance each year. As regards all questions of management and accountancy the agricultural bank is expected to follow the instructions of the competent Central Bank, affiliation with which is compulsory.

The *Central Banks*, which are Unions of the local banks and of certain other economic associations in one or more regions, numbered, as already stated, nine in all at the end of 1934. To these banks there were affiliated at the same date 699 local banks with 59,000 members, as well as 201 other economic associations with about 85,000 individual members. The most important functions of these banks are to grant credits to members, to administer and manage their incomes, to place on interest-bearing banking accounts sums belonging to them, or to members of associations or to the public, to take measures for the proper audit of the accounts and of the administration of the banks and affiliated associations, and generally to work for the development of the co-operative movement and of credit among the farmers in their area.

In order that an association other than an agricultural bank may become a member of a Central Bank, it is required that such association, in the opinion of the central bank, should exercise its activity in a manner satisfactory from the economic standpoint and that its object should be the development of agriculture or of one of its subsidiary branches or the valorisation of the profits obtained by agriculture and by its subsidiary branches.

A central bank may begin operations only when there are affiliated to it 10 local banks with an aggregate of 3,000 share holdings.

Every local affiliated bank must pay in cash to the central bank 50 öre for each share subscribed by its members, this contribution is assigned as a whole to the guarantee fund of the central bank and cannot be restored in the event of withdrawal. Membership of the central bank may be granted to any other association on the basis of a share holding in a reasonable relation to the capital of the association in question. Thirty per cent. of this share holding is assigned to the guarantee fund of the Central Bank and is not restored on withdrawal of the association. No dividend is paid on this contribution. As regards the undertakings of the Central Bank the local affiliated bank is liable for them to the extent of 50 crowns for each share subscribed to it by its members, and any other association is liable with 50 crowns for each share held by it in the Central Bank. Every member affiliated to the Central Bank may, in case of need, be called on to make a compulsory annual payment of 3 per cent. at most in view of his guarantee for the obligations of the Central Bank. This compulsory payment may be made only in the event of the guarantee fund of the Central Bank proving insufficient to cover the losses that have occurred.

After making a deduction to cover the possible deficit of the previous year, all the annual profit of the Central Bank will be passed to the guarantee fund. Only when this fund has reached 10 per cent. of the loans made by the bank and outstanding at the end of the last financial year, and the half of the profit due to the depositors at the same, the central bank will be in a position to decide on the utilisation of a part of the annual profit for other purposes.

The Central Bank can grant credits only to members. Credits may be given against promissory notes, and credits on current account, and the Bank can also discount bills of exchange. Credits to affiliated banks will not exceed the maximum sum of the loans which may be granted to each member of the bank. The Central Bank is however empowered to make loans exceeding this maximum against a mortgage guarantee constituted by a farm estate, which has served as security for the member in question in obtaining a loan from the local bank, provided that the capital value of the mortgage falls within 60 per cent. of the agricultural value of the property according to the valuation made by the Commission of Taxation. An estate is regarded as an agricultural estate, even if there is carried on alongside of the farming, as an independent avocation, horticulture, poultry-keeping, pisciculture or any other similar activity.

Economic associations other than the local banks may obtain credits from the Central Banks, such credits not exceeding 200 crowns for each share subscribed by the association. The whole loan made to these associations cannot exceed one tenth of the sum fixed as maximum for the loans to be granted to the members of the local banks affiliated to the Central Banks, unless an exception to this limit is allowed by the Government.

The Central Banks obtain the necessary funds for their loans, either by means of sums deposited by the public under various forms of banking accounts (savings deposits, deposit accounts, capital account and also, in respect of the affiliated associations and their members, on cheque account) or by rediscounting bills at the Bank of the State, or by borrowing from the Agricultural Credit Bank of Sweden. Except with the consent of this latter no central bank can obtain credit from any other banking institution. Up to the present only one third of the funds necessary to the Central Banks have been raised on the deposits of the public, while two-thirds have been obtained by borrowings.

At the end of 1934 the total sum deposited by the public at the Central Banks amounted to about 18,000,000 crowns, the sum lent to 43,500,000 and all the funds to about 600,000 crowns. Of the sum lent the primary loans amounted to 13,500,000 crowns, the other forms of credit granted to local banks to 28,700,000, and the credits to other economic associations to 1,300,000 crowns. For the loans granted by the Central Banks the following rates of interest were at the middle of 1935 made applicable: for primary loans 3 to  $3\frac{1}{4}$  per cent., for loans against promissory notes  $3\frac{3}{4}$  to  $4\frac{1}{4}$  per cent.; for cereal bills 3 to 4 per cent., for new bills  $3\frac{1}{4}$  to 5 per cent. and for renewed bills  $3\frac{1}{4}$  to 5 per cent. In addition to these rates of interest there are sometimes certain commissions, part of which go to the local banks.

In accordance with the resolution of the Parliament in 1928, the State guarantees the loans obtained by the Central Banks up to a certain point, and

State bonds are deposited as guarantee with the State Bank up to a sum corresponding to 20 per cent. of the sums borrowed by each Central Bank. At the time these deposits were not to exceed 500,000 crowns for each central bank but following on the decision of the Parliament of 1934 the maximum has been raised to 750,000 crowns.

The State gives financial support to the Central Banks in the form of an administrative subsidy, payable at 200 crowns for the first five years, 100 crowns for the second five year period, 50 crowns for the third, and 25 crowns for the fourth, this subsidy being calculated per year and by local affiliated bank or economic association.

Every local affiliated bank and every other association has the right to send a representative to the general meetings. The representatives of the local banks have one vote; the representatives of the other associations have one tenth of a vote.

The Council of the Central Banks is constituted by from 6 to 14 members elected for two years by the general meeting, as well as one member elected by the Agricultural Credit Bank of Sweden. The Council elects the president, vice-president, managing director and an Executive Committee consisting of three members chosen from among the members of the Council. The election of the managing director must receive the confirmation of the Council of the Agricultural Credit Bank of Sweden.

*Svenska Jordbrukskreditkassan* (Agricultural Credit Bank of Sweden). — As already stated, a principal joint organisation was established in 1930 for the co-operative agricultural banks, movement, viz., the Agricultural Bank of Sweden. According to a Royal Decree of 3 July 1930 the function of this bank is to borrow sums of money and to lend them to the Central Banks which utilise them for their activity, this apart from sums which may fall into them from their own deposits; in addition the Bank is to contribute to the regularisation of the business in cheques and drafts, on sight or on order, to supervise the administration and activity alike of the central and of the local banks, and in addition to act as promoter of agricultural banks and in general to develop this movement.

In the same way as the central and local banks the Agricultural Credit Bank of Sweden receives financial support from the State in the form of an administrative subsidy, payable with 0.05 per cent. of the loans granted by the bank during the first five years of its working and decreasing subsequently prorata as in the case of the central and local banks. Special subsidies are payable by the State to the Agricultural Credit Bank of Sweden towards the expenses of auditing, of instruction and of organisation. For the financial year 1934-35 the allocation estimated amounted to 50,000 crowns and had been larger in previous years.

As capital for the working of the loans of the Agricultural Credit Bank of Sweden the State had placed at its disposal in 1930 state bonds to the value of 15,000,000 crowns at 4  $\frac{1}{2}$  per cent., a sum since increased to 25,000,000 crowns. In addition State bonds for a sum of 5,000,000 crowns were in 1933 placed at the disposal of the Agricultural Bank in order to form a guarantee for the loans made to it by the State Bank, and for the same purpose another 10,000,000 crowns were granted in 1934. The cover for the engagements of the Agricultural Credit

Bank of Sweden is however formed in the first instance by the guarantee of the central banks, which is in direct relation with the total of their borrowings from the Agricultural Credit Bank, and is joint and several in respect of all the banks.

In order to concede loans to the central banks the Agricultural Credit Bank of Sweden had effected borrowings to the end of 1934 for the sum of 24,140,000 crowns, and in particular with the Administration of State Pensions, the Post Office Savings Bank and the State Bank. The average rate of interest on these borrowings was at the same time 3.57 per cent., and the average rate of interest for the loans made by the Agricultural Credit Bank of Sweden to the central banks amounted at the same date to 3.71 per cent.

It is not practicable for the Agricultural Credit Bank to charge a less rate of interest for the loans made by it for the reason that it is obliged to pay for part of the sums borrowed a relatively high rate, 4 ½ per cent., for a period of 10 years. In so far as it may be able to secure capital at the more reduced rates now in force, the bank will clearly be able to reduce still further the rate of interest for the loans it makes.

As regards the employment of the profit arising from the working of the Bank it should be noted that in accordance with the rules such profit must be passed to the reserve fund.

Since 1933 all the auditing of the agricultural banks, central as well as local, has been centralised in a special section established for the purpose at the *Svenska Jordbrukskreditkassan*; this section also has advisory functions and supervises the working of the banks. The propaganda carried out by the Agricultural Credit Bank usually takes the form of lectures given at different places, the distribution of literature, publication of articles and notices in the periodicals which circulate among farmers. The Bank has also undertaken the training of collaborators in the work of organisation, and in particular the organising of courses of instruction for the officials of the agricultural banks.

The *Svenska Jordbrukskreditkassan* is administered by a Council consisting of five members one of whom is appointed by the Government and acts as president. A second is selected by the Administration of the Public Debt and the other three by the central banks.

## 7. — OTHER CO-OPERATIVE ORGANISATIONS.

*Co-operation in Fruit-growing and other Forms of Horticulture.* — The co-operative organisations for encouraging growing of fruit and of other horticultural products an important branch of agriculture in Sweden, shown by the fact that the value of the apple harvest alone is estimated at about 70,000,000 crowns--have been in existence for some time in Sweden and, in 1934, there were already more than 800 associations of fruit-growers with more than 40,000 members. The local associations of producers are either organised as provincial associations of an educational type for promoting fruit growing by means of courses and lectures, arranging for the trees to be examined by experts, etc., or in so-called Fruit Centrals which are of more recent date and are engaged in collecting, selecting, packing and marketing the produce of their

members. At the head of the activity for improving the quality of fruits and developing fruit growing in general in Sweden is the *Sveriges Pomologiska Förening* (Swedish Association of Pomology), founded in 1910, while the *Riksförbundet Svensk Frukt* (National Federation of Swedish Fruit Growers), founded in 1934, which is the central organisation of the Fruit Centrals, is mainly a commercial undertaking. Its object is to secure the sale of that part of the fruits and other horticultural products of their members which they have not succeeded in marketing locally, and to purchase, on behalf of the members, the requisites necessary for production. There is a very close collaboration between the fruit centrals, and the educational provincial associations, and between the Swedish Association of Pomology and the National Federation of Swedish Fruit Growers, and a representative of the former Association is included in both the council of management and the executive committee of the National Federation.

When the organisation for marketing is completed there should be a total of 18 fruit centrals. In the most important centres of production, packing stations have been established where the products are collected, selected, packed and distributed, operations which are carried out according to rules which are uniform for the whole country. Of the 40 packing stations considered necessary, 30 to 35 will be functioning by the beginning of the season 1935.

*Grain Warehousing Associations.* — As has already been said, the central associations for co-operative purchase of farm requisites are also actively engaged in warehousing, drying, and marketing the grain of their members and granting credits on it. This activity, however, is not confined to these central associations, but is also carried out by other co-operative agricultural organisations specially established for this purpose, namely, the *Lagerhusföreningar* (warehousing associations) of which there are at present in existence 12 large and several of minor importance with a storage capacity of of about 60,000 tons (1). In so far as these associations fulfil certain conditions relative to affiliation, responsibilities and obligations with regard to supply, etc., the State, in accordance with the legislation in force, grants them credits amortisable over a maximum period of 40 years for the purpose of constructing silos, such credits amounting to 60 to 85 per cent. of the building costs. Amortisation payments are not required over a period of 3 years. If the silos are completed within a fixed period 15 per cent. of the building costs may be considered as State contribution and therefore only 70 per cent. has to be repaid.

*Co-operation between Forest Owners.* — While up to the time of the world war the activity of the forestry associations was entirely confined to problems of production—re-forestation, drainage, regeneration of forests, etc.—the

(1) In September 1935 all the grain warehousing associations formed a joint organisation, the *Svenska Spannmålstöreningarnas Samorganisation* (National Federation of Grain Warehousing Associations).

very serious crisis of 1931-1933 in the forestry industry, which contributes substantially towards the agricultural revenue in Sweden, brought the problem of marketing to the front and led to a total transformation of the educational associations of forest owners into economic associations, either directly or through subsidiary organisations, whereas their work of silviculture, properly so called, was to a great extent taken over by the so-called forestry administrations (*Skogsvårdsstyrelser*), institutions established by Royal Ordinance in 1923, for the purpose of seeing that the provisions of the laws on the supervision of privately owned forests are strictly observed.

The principal object of the associations of forest owners, as they exist at present, is to market the forestry products of their members and to carry out propaganda for scientific production and a more extensive utilisation of forestry products. The subscriptions payable by members are generally fixed per hectare of woodland in production. A certain number of associations require only a single subscription of 100 crowns as the maximum, but many also require annual subscriptions of 1 to 25 crowns. Each member has usually the right to one vote, but in certain of the associations the more important members have the right to from 2 to 3 votes. The most recently established associations have all introduced the obligation to deliver certain products, but this obligation as a rule is only applied following a special decision by the general meeting of the Federation.

The sale of wood for paper pulp and the sale of wood for fuel are very important items in the programme of all the associations of forest owners in Sweden and, in addition, the sale of wood for sawing by the associations in the north and the sale of posts and beams by the associations in the central parts of the country and in the south.

In 1932, the associations of forest owners established a joint organisation, the *Skogsägareföreningarnas Riksförbund* (National Federation of Associations of Forest Owners) which up to the present has been an organisation of an advisory nature interested also in forestry policy. It seems probable, however, that in the future the Federation will also initiate an economic activity and will take part in the organisation of marketing products.

*Other Associations.* -- In addition to the agricultural co-operative organisations mentioned above there also exist among Swedish farmers several thousand associations for electric supply, about 1,000 threshing associations and 300 to 400 associations for operating mills, saw-mills, land drainage, for collection of litter and peat, beet-root growers, seed production, etc.

H. LINDSTEDT.



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OF

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### PIG BREEDING AS A FACTOR IN THE EARNING CAPACITY OF AGRICULTURE IN CERTAIN EUROPEAN COUNTRIES FROM 1927-28 TO 1931-32.

(Conclusion).

In a series of articles which have appeared in this Review in the course of this year, the endeavour has been to discover the extent to which pig-breeding has influenced the earning capacity of farms or has been a factor in its variations.

It has been recognised that the crops and the industries of a farm are part of its structure, and that their close organic connection makes it impossible to separate, speaking from the economic standpoint, the results accruing from the different branches. To quote M. Ferté, Director of the Soissons Accountancy Office (France), *it is in the synthesis of all these separate accounts that the single figure is found that has an absolute and indisputable value: the one that relates the whole*. Everything hangs together on a farm: the earning capacity of one branch of farming influences that of another branch.

The net return contains the key-stone of the whole of this discussion. Since the net return is the function at once of the gross return and of the farm expenses, by following the variations of the net return through the years, through the regions of production and the farming systems, it has proved possible to discover the causes of these changes: *viz.*, the increase or decrease in the different returns constituting the total gross return, one of which is the gross return of pig breeding; the increase or decrease in the components of the farm expenses and in the farm expenses themselves. In order to render the comparison possible among the countries, regions and farming systems, a common measure was chosen. The net return obtained in Denmark in 1927-28, for the whole of the Danish farms, which are mainly engaged in pig breeding, was reduced to 100 and served as the basis of comparison. The difference, positive or negative, then appeared between the net return of 1927-28 in Denmark and the net returns for the subsequent years in the same country; and further the difference between the net return in 1927-28 in Denmark and the net return in the other countries in 1927-1928 and in subsequent years. When the net returns increased, the data were examined to see if it was the gross returns that had increased or the farm expenses which had diminished, or whether the farm expenses had diminished to a greater extent than the gross returns. When the net returns diminished, the question

was whether it was the farm expenses which had increased or the gross returns which had diminished, or whether the gross returns had diminished to a greater extent than the farm expenses. From the gross return and the farm expenses the enquiry passed on to their components.

The values used in our study of the financial results of farms have thus been the gross return, the farm expenses and the net return, which last, since it is obtained by deducting the actual expenditure from the gross return, is that part of the gross return which may be regarded as being the effective return from the capital invested the farming.

If these accountancy results are compared with those of Denmark, it becomes possible to assign the countries to three groups: I. a group containing Denmark and Overijssel (Netherlands), where 90 per cent. of the values produced are values derived from live stock farming; II. a group of countries where the proportion of live stock products in the gross return does not exceed 70 per cent.: Switzerland, Norway, Sweden, Finland; III. a group of countries where such proportion is from 40 to 50 per cent.: Germany, Austria, Poland, Lithuania, Latvia and Estonia.

The gross return from pig breeding amounted in 1927-30:

in Denmark . . . . .	to 31.30 %	of the total gross return
in Overijssel . . . . .	to 23.24 %	» »
in Switzerland . . . . .	to 8.89 %	» »
in Norway . . . . .	to 11.46 %	» »
in Sweden . . . . .	to 6.49 %	» »
in Finland . . . . .	to 8.48 %	» »
in Germany . . . . .	to 9.34 %	» »
in Austria . . . . .	to 17.48 %	» »
in Poland . . . . .	to 15.30 %	» »
in Lithuania . . . . .	to 18.52 %	» »
in Latvia . . . . .	to 13.65 %	» »
in Estonia . . . . .	to 13.93 %	» »

In Switzerland, Sweden, Finland and Germany this proportion is lowest; it is highest in Overijssel; the countries of Central and Eastern Europe hold a middle position.

In regard to farm expenses, it may be said that the main expenses in Denmark are the labour costs and the expenditure for purchases of concentrated feeds and that these are very high. They are lower in Overijssel.

In Switzerland the main farm expenses are the labour costs and the general expenses. Farm expenses are higher than in Denmark; taking Norway, Sweden, Finland, a steady decline may be noted in that order.

Labour costs and purchases of fertiliser are fairly high in Germany; this country holds a middle position between the countries producing at high cost and those producing cheaply. The labour costs are 100 gold francs per unit of area (1.64 ha.); they are less high in Austria, in Poland, in Lithuania, in Latvia and in Estonia, a country which produces cheaply, than in Finland.

Switzerland is the only country which has a net return higher than Denmark. From 1927-28 to 1929-30 inclusive, the variations in the net return in the countries under review are due to atmospheric conditions, to the harvests, to the protection which was extended by the Governments to one or another product. The effects of the crisis do not begin to be felt till 1930-31. Market prices of farm products then collapse and the export trade is paralysed. Farm expenses, although lower, fall only in a less proportion than the gross return.

In 1930-31, the percentage composition of the gross return changes. The percentage relating to pig breeding may be shown as follows:—

for Denmark . . . . .	to 29.09 %	of the gross return	
» Overijssel . . . . .	to 16.64 %	»	»
» Switzerland . . . . .	to 10.73 %	»	»
» Norway . . . . .	to 11.61 %	»	»
» Sweden . . . . .	to 7.82 %	»	»
» Finland . . . . .	to 8.65 %	»	»
» Germany . . . . .	to 8.56 %	»	»
» Austria . . . . .	to 19.50 %	»	»
» Poland . . . . .	to 12.13 %	»	»
» Lithuania . . . . .	to 17.09 %	»	»
» Latvia . . . . .	to 12.99 %	»	»
» Estonia . . . . .	to 13.41 %	»	»

The percentage of the gross return derived from pig breeding thus increased in Switzerland, Norway and in Austria; in Denmark, Overijssel, Sweden, Germany, Poland, Lithuania and Latvia it has diminished. The reasons will appear later.

In Denmark, production increased, but prices fell lower than those of milk, so that the gross return of the dairy industry has gained ground. In the Netherlands, the export of pigs slackened. In Switzerland the frontier was closed to animals from abroad, prices declined for oxen and pigs. In Norway production of fresh and condensed milk became less. The production of beef and pork increased but pig prices declined. Switzerland increased pork exports; production increased but prices unfortunately fell considerably. In Finland the volume of exports of eggs, pork, butter and cheese increased. In this country the cost of labour fell but building materials became dearer. In Germany the production of pork increased, in spite of the fall in prices; production of beef and milk was contracted. Austria became an exporter of dairy products, and Lithuania of cereals. The production of pork in Austria was greatly increased, and in Lithuania much more milk was produced. Pigs did not sell readily in Poland; in Latvia pig production increased and also, markedly, dairy production. Except for dairy products, the external trade of Estonia began to disappear. Prices and production of beef, pork and milk decreased in nearly equal proportion.

The net return has greatly diminished in Overijssel, in Norway, in Poland and in Estonia. In the other countries the position is maintained.

In 1931-32 the net return fell below zero in Denmark, Overijssel, Austria, Sweden, Lithuania, Latvia and in Estonia in consequence of the collapse of the prices of agricultural products. Prices of farm requisites fell also but to a less extent; in Latvia these expenses even increased. From Denmark there was a larger volume of exports of eggs, pork, milk and especially of beef; from Lithuania, an increased bacon export, and from Estonia and Latvia an increase in the export of pigs. The exports of Swedish bacon increased by 9 per cent.

In Germany, in Norway and in Poland the net return is seen to tend towards zero. Prices of agricultural products again fell in these countries to a marked degree; but in Germany the cost of labour was greatly reduced while in Norway, wages, prices of concentrated feeds and building materials fell, and in Poland purchases of fertiliser and orders for farm machines declined and wages fell.

The net return was reduced in a less degree in Switzerland and in Finland: in Switzerland this was the case, although there was some increase in farm expenses, owing to governmental measures; in Finland, the reduction was due to the reduction in labour costs, the outlay for purchases of concentrated feeds, and the prices of building materials. The prices of agricultural products follow here as elsewhere a descending curve.

In Switzerland, less attention was given to the production of beef than in the previous year. Finland increased exports of butter, cheese, bacon and especially of eggs.

The place taken by pig breeding in the gross return in the year 1931-32 will now be examined. The percentages of the gross return from pig breeding in 1931-32 will be shown, with, on the right, in brackets, the 1930-31 percentages, and opposite, the production in kg. of live weight per ha., of pigs, cattle and milk, in 1930-31 and in 1931-32.

Countries	Gross return from pigbreeding in % of total		Production of				Milk production	
	in 1931-32	in 1930-31	pork		beef		1931-32	1930-31
			1931-32	1930-31	1931-32	1931-30		
Denmark . . . . .	29.47	(29.09)	174	142	47	70	1778	1848
Netherlands (Overijs.)	20.26	(16.64)	118	118	10	154	2304	2179
Austria . . . . .	20.28	(19.50)	51	43	14	28	264	288
Sweden . . . . .	6.42	( 7.82)	38	38	77	63	647	685
Lithuania . . . . .	19.88	(17.09)	34	26	4	6	151	200
Latvia . . . . .	11.69	(12.99)	18	18	5	8	518	938
Estonia . . . . .	10.30	(13.41)	12	14	7	10	272	194
Germany . . . . .	7.12	( 8.56)	28	28	34	35	351	343
Norway . . . . .	11.13	(11.61)	104	105	93	90	1582	1400
Poland . . . . .	11.97	(12.13)	38	35	16	11	310	325
Switzerland . . . . .	8.35	(10.73)	56	59	135	170	1704	1718
Finland . . . . .	8.46	( 8.65)	31	27	15	15	730	744

The gross return from pig breeding thus rose in 1931-32 in Denmark, in Overijssel, in Austria, and in Lithuania: the production increased and the fall in prices was not so marked as to allow the returns from other products to outstrip that from pig breeding. In Poland and in Finland, although production increased, the gross return from pig fattening lost ground, while milk production, stimulated by more favourable prices, gained ground. In Sweden, Latvia and Germany, where production remained the same as before, the gross return from pig fattening was lower than that of the other branches, *viz.*, in Sweden and Latvia, of milk production since milk prices were higher, while in Germany the milk production was larger. Elsewhere, the gross return from pig breeding was in part replaced by that from milk production, as in Estonia, by the returns from or by milk production and cattle breeding (in Norway), or from cereal production, in Switzerland. In Switzerland all live stock production showed a decrease.

It will be seen that the view expressed at the beginning of this concluding article is not mistaken: *it is impossible to make a separate study of the earning capacity of pig breeding, but it is possible to determine its importance in securing the net return, or the effective return on capital invested in agriculture.*

The effects of the crisis, not only for breeding but also for farming as a whole, were thus disastrous in 1931-32. Hence, as already said, it is quite impossible to study a single branch of farming and its economic results in European economic life, if such branch is separated from the organic whole to which it is closely attached. To a more or less degree according to the country, crops are grown in Europe to maintain live stock. The cost prices of crop products are of less importance than their value in transformation.

The effects of government measures are felt on the international scale, a measure adopted for one country in view of protecting a particular production takes effect outside the national territory.

The results of farm accountancy, if combined with other economic and statistical information, reveal certain characteristic tendencies of the period examined.

*There appears to be no other method of determining the economic level of the farm.*

It is intended, at some later date, to study the importance of pig fattening in the different regions, in relation to the farming systems and the size groups of farms.



TABLE I. — *Increase or Decrease of the Net Return, of the Gross Return and of the Farming Expenses from 1927-28 to 1931-32.*

Gold francs per unit of area.

COUNTRY	Difference between the net return, the gross return and the working expenses in Denmark and in the countries indicated below (1)										
	Net return		Gross return, difference					Farming expenses, difference			
	Index numbers	Difference	Pigs	Milk and dairy products	Breeding of slaughter and other stock	Cereals and root crops	Other branches	Total	Labour	Other expenses	Total
Denmark:											
1927-28	100	+	577	691	263	114	116	1,761	616	1,045	1,661
1928-29	343	+	133	33	15	11	9	171	24	48	72
1929-30	306	+	138	3	7	43	9	94	25	87	112
1930-31	31	-	82	103	40	62	3	290	46	175	221
1931-32	21	-	231	266	124	65	32	718	196	401	597
Overijssel:											
1927-28	27	-	253	78	41	9	91	390	104	213	317
1928-29	291	+	222	65	161	5	90	211	108	294	402
1930-31	97	-	380	173	98	27	94	576	113	460	573
1931-32	252	-	436	288	178	48	116	1,066	166	548	714
Switzerland:											
1927-28	203	+	386	12	174	28	432	236	344	211	133
1928-29	306	+	416	76	181	39	420	300	307	213	94
1929-30	418	+	379	52	226	1	442	373	267	255	55
1930-31	398	+	358	16	316	14	328	284	445	259	14
1931-32	205	+	417	49	203	25	398	166	221	166	55
Germany:											
1927-28	2	-	102	-	-	-	-	946	235	609	844
1928-29	59	41	493	540	152	286	104	795	203	551	754
1929-30	47	53	492	559	156	252	72	853	217	563	860
1930-31	27	73	515	567	165	238	61	948	236	639	875
1931-32	7	93	528	588	194	191	46	1,073	285	695	980
Austria:											
1927-28	127	+	467	560	139	21	47	1,140	302	865	1,167
1928-29	79	21	494	570	174	31	29	1,240	347	872	1,219
1929-30	70	30	478	571	154	45	20	1,228	342	856	1,198
1930-31	41	57	474	568	119	55	12	1,234	340	835	1,175
1931-32	11	111	479	587	-	51	-	1,327	572	844	1,316

Norway:														
1927-28	128	48	—	422	—	126	+	67	+	128	+	151	—	202
1928-29	174	74	—	390	—	125	+	12	+	112	+	176	—	215
1929-30	176	78	—	400	—	154	+	30	+	55	+	133	—	336
1930-31	106	6	—	423	—	163	+	28	+	24	+	105	—	439
1931-32	38	62	—	401	—	250	+	67	+	28	+	30	—	720
Sweden:														
1927-28	38	62	—	534	—	330	—	103	+	117	—	35	—	885
1928-29	71	29	—	526	—	321	—	102	+	157	—	41	—	856
1929-30	51	49	—	496	—	328	—	116	+	97	—	41	—	884
1930-31	72	72	—	514	—	365	—	126	+	106	—	49	—	948
1931-32	18	118	—	555	—	426	—	152	+	57	—	58	—	1,114
Finland:														
1927-28	79	21	—	533	—	432	—	190	—	7	—	58	—	1,220
1928-29	61	39	—	533	—	415	—	188	—	21	—	56	—	1,213
1929-30	53	47	—	532	—	446	—	194	—	37	—	60	—	1,260
1930-31	55	45	—	540	—	484	—	205	—	33	—	65	—	1,327
1931-32	49	51	—	551	—	547	—	223	—	47	—	81	—	1,449
Poland:														
1927-28	192	92	—	496	—	593	—	149	+	70	—	34	—	1,202
1928-29	142	42	—	500	—	582	—	158	+	62	—	26	—	1,204
1929-30	99	1	—	492	—	590	—	164	+	13	—	53	—	1,286
1930-31	26	74	—	534	—	611	—	194	+	0	—	63	—	1,402
1931-32	10	90	—	544	—	630	—	217	—	24	—	66	—	1,481
Lithuania:														
1928-29	28	72	—	539	—	648	—	239	—	22	—	51	—	1,499
1929-30	53	47	—	528	—	636	—	234	—	34	—	64	—	1,496
1930-31	35	65	—	533	—	629	—	244	—	42	—	56	—	1,504
1931-32	1	101	—	536	—	649	—	248	—	70	—	50	—	1,553
Latvia:														
1927-28	30	70	—	539	—	600	—	236	—	61	—	70	—	1,506
1928-29	15	115	—	545	—	616	—	220	—	72	—	67	—	1,520
1929-30	40	60	—	542	—	604	—	221	—	70	—	67	—	1,484
1930-31	31	69	—	540	—	593	—	230	—	47	—	62	—	1,472
1931-32	32	132	—	555	—	625	—	243	—	73	—	76	—	1,572
Estonia:														
1927-28	32	68	—	541	—	618	—	224	—	65	—	37	—	1,485
1928-29	21	79	—	540	—	612	—	225	—	64	—	49	—	1,490
1929-30	18	82	—	537	—	610	—	223	—	70	—	49	—	1,494
1930-31	12	88	—	547	—	624	—	231	—	73	—	57	—	1,534
1931-32	12	112	—	558	—	637	—	238	—	72	—	66	—	1,571

(1) In the first column of the Table are found the index-numbers of the net returns of all the countries under review, and for the years 1927-28, 1928-29, 1929-30, 1930-31 and 1931-32. The net return of the Danish farms in 1927-28 has been taken as equal to 100; the other net returns are calculated on this base figure. The following columns show the difference, positive or negative, between the net returns, the gross returns and the farm expenses in Denmark in 1927-28 and those in the subsequent years. All the figures thus relate to the conventional unit of area adopted here, the arca of 1.64 ha., corresponding to the net return of 100 gold francs in Denmark in 1927-28.

TABLE II. — *Production per hectare from 1927-28 to 1931-32.*

Country	Production per hectare (1)			Gross return in quantities (2)				
	Cereals (quintals)	Potatoes (quintals)	Sugar beet (quintals)	Cattle (kg. of live weight)	Milk (kg.)	Pigs (kg. of live weight)	Cereals (quintals)	Potatoes (quintals)
<b>Denmark:</b>								
1927-28 . . . . .	9.10	1.92	4 —	107	1,557	131	1.51	0.81
1928-29 . . . . .	11.79	3.98	4.36	108	1,379	152	2 —	0.89
1929-30 . . . . .	11.79	3.64	3.09	80	1,609	142	1.28	0.61
1930-31 . . . . .	10.43	3.14	3.43	70	1,848	149	1.01	0.72
1931-32 . . . . .	8.98	2.83	2.54	47	1,778	128	1.01	0.85
<b>Overijssel:</b>								
1927-28 . . . . .	4.98	11.98	7.99	128	1,920	144	2.64	—
1929-30 . . . . .	6.78	20.19	8.95	166	2,120	231	5.04	—
1930-31 . . . . .	5.19	15.14	9.25	154	2,179	118	6.19	—
1931-32 . . . . .	4.78	13.39	4.45	10	2,304	118	2.91	—
<b>Switzerland:</b>								
1927-28 . . . . .	1.13	3.25	0.21	146	1,727	52	1.36	2.38
1928-29 . . . . .	1.10	2.97	0.22	139	1,734	53	1.51	2.51
1929-30 . . . . .	1.07	3.62	0.20	152	1,745	60	1.50	2.19
1930-31 . . . . .	0.93	2.62	0.19	170	1,718	59	1.32	2.05
1931-32 . . . . .	0.98	3.33	0.18	135	1,704	56	1.56	2.83
<b>Germany:</b>								
1927-28 . . . . .	—	—	—	—	—	—	—	—
1928-29 . . . . .	8.57	14 —	3.75	33	436	38	6.87	5.61
1929-30 . . . . .	9.41	13.64	3.77	38	382	27	7.50	5.35
1930-31 . . . . .	7.58	16 —	5.06	35	343	28	7.04	3.50
1931-32 . . . . .	7.52	14.94	3.77	34	351	28	6.21	3.22
<b>Austria:</b>								
1927-28 . . . . .	2.56	4.22	1.06	35	295	46	1.80	0.48
1928-29 . . . . .	2.51	3.48	0.63	29	273	38	1.32	0.86
1929-30 . . . . .	2.47	4.07	1 —	26	281	36	1.25	0.62
1930-31 . . . . .	2.33	3.71	1.37	28	288	43	1.59	0.66
1931-32 . . . . .	1.97	3.69	1.33	14	264	51	1.30	0.60
<b>Norway.</b>								
1927-28 . . . . .	3.37	6.41	—	90	1,380	76	2.28	3.67
1928-29 . . . . .	3.53	9.99	—	82	1,382	78	2.80	3.46
1929-30 . . . . .	3.24	9.06	—	88	1,425	82	2.65	4.78
1930-31 . . . . .	3.31	7.67	—	90	1,400	105	2.41	3.73
1931-32 . . . . .	2.64	7.63	—	93	1,582	104	2.07	4.42
<b>Sweden:</b>								
1927-28 . . . . .	5.82	2.01	2.12	65	957	20	4.23	0.68
1928-29 . . . . .	6.51	3.63	2.33	72	904	19	5.81	0.78
1929-30 . . . . .	6.38	3.75	1.53	60	924	31	5.07	1.51
1930-31 . . . . .	6.51	3.50	2.40	63	685	38	4.84	2.50
1931-32 . . . . .	5.30	2.94	1.74	77	647	38	4.63	1.43
<b>Finland:</b>								
1927-28 . . . . .	3.55	3.53	0.16	19	719	26	1.79	1.10
1928-29 . . . . .	3.18	2.05	0.14	20	765	24	1.56	1.21
1929-30 . . . . .	3.18	2.27	0.09	19	747	24	1.60	1.22
1930-31 . . . . .	4.46	2.92	0.10	15	744	27	1.94	2.18
1931-32 . . . . .	3.83	2.78	0.11	15	730	31	2.01	1.82
<b>Poland:</b>								
1927-28 . . . . .	4.67	10.22	1.38	15	352	41	3.42	3.45
1928-29 . . . . .	5.12	10.65	1.88	15	351	41	3.66	3.51
1929-30 . . . . .	5.79	12.33	1.93	14	337	38	3.76	2.43
1930-31 . . . . .	5.46	11.78	1.78	11	325	35	4.13	3.66
1931-32 . . . . .	5.03	11.64	1.04	16	310	38	3.21	3.36

Country	Production per hectare (1)			Gross return in quantities (2)				
	Cereals	Potatoes	Sugar beet	Cattle (kg of live weight)	Milk (kg)	Pigs (kg of live weight)	Cereals	Potatoes
	(quintals)	(quintals)	(quintals)				(quintals)	(quintals)
<b>Lithuania</b>								
1927-28	3 15	3 03	—	—	—	—	—	—
1928-29	3 02	2 30	—	—	—	—	—	—
1929 30	4 12	4 44	—	11	160	27	3 30	1 92
1930-31	4 41	4 52	—	6	200	26	5 62	3 20
1931-32	4 03	5 17	—	4	151	34	2 78	2 01
<b>Latvia</b>								
1927-28	1 88	1 67	—	12	397	22	—	—
1928 29	1 58	0 80	—	14	306	18	0 69	—
1929 30	2 32	2 68	—	11	329	15	0 71	—
1930 31	2 69	2 35	—	8	399	18	1 88	—
1931-32	2 02	2 32	—	5	288	18	1 07	—
<b>Estonia</b>								
1927 28	1 55	2 40	—	14	212	18	0 80	1 18
1928 29	1 40	1 62	—	13	218	16	0 71	0 85
1929 30	1 70	2 44	—	11	197	16	0 70	1 00
1930 31	2 09	2 80	—	10	194	14	1 11	0 81
1931 32	1 88	2 77	—	7	272	12	1 06	0 86

(1) Figures taken from the *International Year Book of Agricultural Statistics* and referred to the area serving as base for the transformation calculations of the accountancy results this area not being the same in all countries as certain offices include the forests, water, etc., while others exclude them. Consequently the figures are not strictly comparable as between one country and another.

(2) Figures based on the accountancy data and also referring for each country to an area calculated according to the custom of the offices as explained under (1). In the three first columns appear the quantities harvested per hectare of the area in question, and in the five columns following the quantities which go to make up the gross return, that is, those which were sold or consumed in the household, those which were transformed on the farm are excluded. Whence the greater or less difference.

JOSEPH DESLARZES

## THE NEW REGULATION OF THE WHEAT MARKET IN SPAIN

The agricultural wealth of Spain is estimated at 10,000 millions of pesetas per annum, half of this amount, approximately, being accounted for by cereals, in which wheat alone represents 50 per cent, since the average production of 40,000,000 quintals of wheat is equivalent to 2,500,000,000 pesetas.

It is clear from these figures that wheat is the basic factor in the agricultural wealth of Spain, thus justifying the particular attention given by the State to everything relating to this essential foodstuff. As there has been in recent years a considerable body of legislation in regard to wheat, some brief account of the present position of the wheat problem in Spain would seem to be called for.

The new direction given by the State to the wheat market, which has recently been dislocated by excessive imports in 1932 and by two very abundant harvests with consequent carry over of stocks, marks a profound change in the methods previously followed, viz., from a definite policy of intervention to one of trading on the open market. Up to the present, in fact, an interventionist policy prevailed introduced twenty years earlier, involving the fixing of standard prices, which sometimes represented the highest price that the grower could ask for his wheat

(maximum price), and at other times the lowest price which the miller was expected to pay for wheat. These standard prices as stated above fix the maximum and minimum price limits for Spanish wheats on the market, and within these two extremes there is a continuous advance for the months of the farming year in proportion to their distance from the time of harvest. Immediately after the harvest, the minimum price of 50 pesetas rules for earlier months up to November, when the rate rises to 51 pesetas and closes at the maximum price of 53 pesetas during the months of April and May which immediately precede the new harvest, the period when the wheat stocks are at their lowest.

The establishment of these prices moreover had the effect of protecting the interests of the grower and of the miller whenever these interests were threatened by abnormal conditions. In years of crop failure and accordingly of scarcity, and before recourse is had to importation, the maximum rate above which the grower cannot sell his wheat acts as a protection of the interests of the miller, preventing the grower from taking advantage of the scarcity to sell at high prices; in years of good harvests the minimum price fixed for the millers' purchases protects the interests of the grower who apart from these measures assuring him a remunerative price might have been faced with a serious fall in the price of wheat. There was no question of any export of surplus supplies in such years of plenty, since the prices at which Spanish wheats can be placed on the world consuming markets are too high to make export possible. Spain cannot in fact export wheat, firstly because, apart from the exceptional years of short or of surplus harvests, there is a close relation between production and internal consumption, and secondly — and this the factor which is really prohibitive of export — Spanish wheat is grown at a very much higher cost price than are the wheats which have invaded the world market, such as the Canadian, the Argentine wheats, etc. On the other hand Spanish wheat cannot compete with these latter in quality. The ruling price of Canadian Manitoba I is 70 cents per bushel, which corresponds to 20 pesetas per quintal; this price when compared with the 50 pesetas which is the minimum price of Spanish wheat makes it useless to consider exportation.

The object of this policy of standard prices is the maintenance of a low price for bread making it always accessible to the masses. Within the limits of this policy and in order to maintain its equilibrium a number of subsidiary measures ensured the steady working of the market; it will thus be seen that a tolerance is allowed in the percentages of other flours for admixture with wheat flour in times of wheat shortage, that the temporary importation of foreign wheat is permitted and that tariffs are lowered or even removed. It may be said that farmers and those engaged in subsidiary industries never for a moment experience any withdrawal of State protection.

Such was the development of the situation up to the time when the surplus production of 1932, the excessive imports of the following year due to the poor harvest of the 1933 season, together with the stocks remaining from 1932 and the again abundant harvest of 1934, brought about a congestion on the market and new legislative measures had to be adopted in order to ensure regulation. Before however, giving an account of these measures which culminated in the abandonment of the policy of intervention, it may conduce to a clearer view of the situation

if some figures are presented relating to the production of wheat and to the areas under wheat cultivation in Spain in the five year period 1930 to 1934 (1):

*Production of Wheat (1930 to 1934) in Quintals*

1930 . . . . .	39,925,575
1931 . . . . .	36,585,330
1932 . . . . .	50,133,551
1933 . . . . .	37,621,872
1934 . . . . .	50,848,833

*Area under Wheat Cultivation (1930 to 1934) in Hectares*

1930 . . . . .	4,505,660
1931 . . . . .	4,550,653
1932 . . . . .	4,552,135
1933 . . . . .	4,519,753
1934 . . . . .	4,608,331

Hence while the areas under cultivation have scarcely varied from one year to another, the production shows very perceptible fluctuations, the difference between the crop production in 1931 or in 1933 and that in 1932 and 1934, being approximately 14,000,000. Since the quantities required for consumption and for sowings represent some 42,000,000 quintals yearly, the surplus production of these last mentioned years could not but have effects on the normal equilibrium of the market, causing dislocation.

In view of these difficulties the Government accentuated its policy of intervention by means of a Decree promulgated on 1 July 1934, by which free trading in wheat between growers and millers was prohibited and all operations of purchase and sale of wheat were placed exclusively in the hands of the Wheat Trading Committees (*Juntas de contratación de trigo*) set up by the Decree in question (2). This direct intervention was absolutely necessary in order to do away with the abuses practiced alike by the two parties concerned, growers and purchasers. It has already been seen that in the years of an abundant crop, when by the establishment of a legal minimum a remunerative price was assured to the grower for the whole year, the grower encountered difficulties in selling because in view of the abundance of the crop the miller would reduce his purchases in the certainty that under the compulsion of necessity the grower, and more particularly the poorer cultivator, would be ready to offer him the wheat at a price below the rate fixed. In other years of short production, while no importation such as would render the market normal was as yet allowed, the owner would place an exaggerated value on the product and would refuse to sell, holding the wheat in the certainty that the miller would endeavour to obtain it by offer-

(1) The data are taken from the *International Yearbook of Agricultural Statistics* published by the International Institute of Agriculture.

(2) See the *Monthly Bulletin of Agricultural Economics and Sociology*. October 1934, pp. 472-477.

ing prices above the legal rate. From the opposing interests of the two parties there arose a chronic state of disorder on the market which it was the object of the Government to bring to an end, by setting up the Committees mentioned above which were to undertake all operations of sale and purchase, on a sworn declaration of stocks made by the growers and warehousemen of the grain, thus ensuring that no part of the product should escape the action of the State fiscal measures.

In spite of the strictness with which the decree was applied the holding back of wheat continued together with clandestine purchases at prices lower than those established by the scale of prices; on the other hand it must be recognised that as a result of the decree any very marked fall in the actual prices of wheat was avoided. Circumstances have rendered necessary the further improvement of the existing mechanism and of its working, and with this object a new supplementary decree was promulgated on 24 November 1934, by which there were set up new Committees known as regional committees (*Juntas Comarcales*) the function of which also was to intervene in all wheat purchase operations and to declare null and void the purchase and sale of this cereal if taking place apart from the intervention of the regional committee, and to impose on any buyer carrying out an operation outside the control of the new organisation a fine of not less than 10 per cent. nor above 50 per cent of the value of the cereal forming the object of the operation carried out or proposed. These newly instituted bodies consist of a president appointed by the Government and of two members one of whom represents the growers and the other the millers, together with a secretary. By the decree of 24 November 1934, the number of these committees is as far reduced as possible, and with this reduction in view it is enacted that they are to be set up only in the localities of more importance either on account of the extent of their wheat market, or from the existence of wheat flour mills, or because they offer from their position special facilities for the transport of the wheat to the natural points of consumption.

The functions assigned to these organisations by the decree involve the total taking over by the State of the whole trading cycle of the wheat; from the reception and registration of the sworn declarations of stocks made by the growers to the sale and delivery to the millers of all the consignments dealt with under the regulations. In consequence it will be the duty of the committees to issue the permits or way bills which prove that the owner of the wheat has fulfilled all legal obligations; to control the price operations so that they may be effected in conformity with the rate indicated; to ascertain if the wheat sold corresponds in quality with the declaration made by the seller; to settle the disputes which may arise between the buyer and the seller; in short, to see that no part of the process escapes the strict intervention which ensures the proper working of the market.

By this decree there was instituted, as a basic and directive factor, in each province of the Spanish territory, a higher organisation presided over by the engineer in chief of the Provincial Agronomic Section and with a membership including two representatives of wheat growers, two millers and one representative of the Government acting as secretary. It was the function of this provincial

organisation to set up the regional committees already referred to, to assign them their sphere of action, to see that their working is in conformity with all the measures regulating the wheat market and in particular with the price regulations, to appoint delegates with the duty of intervening in the price operations connected with the purchase and sale of wheat, and of communicating to the central Government the position and course of the wheat market in their respective province.

As indicated by the Government in the preamble of the decree as above outlined, the measure is of a temporary character only, pending the conclusion of the enquiries made for the purpose of ascertaining whether at the time of the next harvest there would be fully established the network of silos throughout the peninsula.

Such network, it is anticipated, will of itself, and also by means of the standardisation introduced of commercial classes and types, regulate the wheat market and thus resolve this problem in a permanent way. The Minister of Agriculture proposed to submit to the *Cortes* very shortly a bill granting the necessary powers for immobilising, without moving from the spot, large quantities of wheat, for releasing these if convenient, or for denaturing the grain and directing it towards a form of consumption other than the present. By these measures supplemented by the proposal just described which was under consideration at the moment of the preparation of the decree of 24 April 1934, it was designed to bring the market into a normal position.

Finally on 27 February 1935, the law granting the powers (*Ley de Autorizaciones*) referred to in the preceding paragraph was passed. In spite of the measures taken so far, the problem of wheat remained serious from the continuance of the aggravating causes. The very large harvest of 1934, exceeding by more than 6,000,000 quintals the internal consumption needs, gave rise to a surplus which together with the carry over from previous harvests congested the market resulting in a price decline. It thus became necessary to withdraw from circulation a large quantity of wheat, and this was in fact the object of the law as now passed. It was a question once more of regulating the market in view of the fact that the measures taken previously, the establishment of prices and the intervention of the committees, had proved to be in themselves insufficient.

In virtue of this law, the Minister of Agriculture is empowered to adopt two forms of procedure: the first is the voluntary holding back of a quantity up to 600,000 tons of wheat in the hands of agricultural associations or of individuals. The other is the purchase of these 600,000 tons, which in this way are definitely withdrawn from the market; for this purpose is utilised private capital which is offered to the State and accepted by it.

In the case of immobilisation, the owner of the wheat would receive, on the day on which the holding up agreement was concluded, a sum not exceeding 9 per cent. of the value of his wheat at the price rate then ruling. This percentage would represent interest on the capital, warehouse storage and insurance as against the undertaking made not to place the wheat on sale before the date stipulated.



The second method, or the definitive purchase, would be carried out by an institution established for that purpose expressly; such institution would draw from the operation, in addition to the normal interest, a limited business profit on the capital employed. The law affords in fact a maximum of protection to such an institution which is formed in order to prevent, in the words of the law itself, "the subordination of the human to the economic interest, always the ruling one in large plutocratic enterprises," so long as these are not brought under the strict control of the general interest, as represented by the State.

An examination may now be made of the method of meeting the expenses of the immobilisation, which include the payment of the premium for the holding up of the wheat and the general management costs. The expenses of the definitive purchase, on the other hand, include payment of interest on capital employed and the normal profit of the institution carrying out the purchase, as also the usual management costs.

The funds for these purposes are supplied by the State and are obtained by means of a charge of one peseta per quintal of wheat, which in virtue of its powers the State imposes on all operations of buying and selling wheat. They are also derived from the receipts represented by the difference between the purchase and sale price of another operation effected directly by the State which in that same year bought a consignment of 105,000 tons of foreign maize. The State in addition renounced the customs dues on this consignment of maize, and earmarked the same amount to the insurance of its operation of holding up or direct purchase of wheat.

It is thus the State itself — a fact of great importance as giving an idea of the protection it affords to the farming interests — that undertakes the responsibility for all expenses and which ensures the ultimate destination of the grain to the grower who agrees to immobilise it, or to the undertaking which becomes the purchaser.

The result of the out and out purchase of 600,000 tons of wheat is evident: once the more needy farmers have consigned their wheat, the others who are holders will be assured of sale before the end of the season.

The first power granted by the law, that of immobilisation, does not require any large financial resources and hence does not involve the risks of management by powerful groups of financiers, although it does entail an official bureaucratic management wider than that required by an official enterprise undertaking such purchases. The second authorisation requires a much larger amount of capital, since it has to meet the expenditure involved in the purchase price of the quantity of wheat.

It has already been stated that this law gave authority — and for that reason bears the title of *Ley de Autorizaciones* — to the Minister of Agriculture to immobilise a quantity of wheat or to buy it outright: the Minister however desired to share this responsibility with the Legislative Chamber and, without concealing his preference for the authority granted him for effecting the definite purchase of the grain and for making use of private capital for financing the operation, he left the choice to the Chamber between the three courses: immobilisation, purchase outright, or the simultaneous use of both methods. The Chamber

pronounced in favour of the first, *viz.*, immobilisation of the surplus wheat, adding that if the object in view was not so obtained, then direct purchase with recourse to private capital should be adopted.

The Minister proceeded immediately to immobilisation, maintaining the price at the ruling rate, as it was essential to guarantee the selling price of the wheat held back.

The intention was to resolve the problem for the season in course and for the following seasons. Actually, if the seasons proved to be normal, the situation would resolve itself. In view, however, of the possible contingency of a fresh surplus due to an especially plentiful harvest, although the recourse to immobilisation always remained open, the law nevertheless made provision for other means in preference, authorising the Minister also to impose a temporary embargo on new clearings of lands intended to increase the areas under wheat, while the reduction of existing wheat areas was also under consideration.

The facts, however, cheated the hopes and the good intentions of the framers of the law. When the immobilisation was decreed, only 25,000 tons of wheat were offered, a figure falling far below the 600,000 tons that had been anticipated. The measure had been in fact enacted too late for the small farmers who had for the most part already disposed of their wheat, at low prices, in clandestine sales in the hope of avoiding the effect of the price rates and of escaping the action of the assessment boards (*Juntas fiscalizadoras*), their first object being to raise ready money to meet their pressing needs. The larger growers and the speculative holders of wheat were waiting for a better opportunity of selling their stocks.

In consequence it became necessary to have recourse to the alternative power, that of direct purchase, and with this object, there was published in March 1935 a form of tender whereby the financial circles in Spain were made aware of conditions of tender for the purchasing contract. One month later, in April, after having examined the proposals and suggestions sent in, the Government published the rules of the tendering which may be summarised as follows:

All financial institutions of national character might tender provided that they engaged themselves as follows:

(1) to purchase outright and keep in store, withdrawing it from the market, a quantity of wheat up to 500,000 metric tons grown on the territory of the Peninsula, and forming part of the harvest of 1934;

(2) to hold available capital of their own for employment in such purchase amounting to not less than 45,000,000 pesetas. This capital must be national;

(3) to indicate the rate of annual interest which the lending institution will have to charge for the capital employed in the purchase of the wheat, such interest not to exceed that calculated by the Bank of Spain for its current discounting operations;

(4) to indicate also the amount which the financing institution will claim to take at the expiry of the contract as trading profit;

(5) to undertake to begin the purchases of wheat within a fortnight after the contract has been conceded by the State, and further to undertake to pur-

chase the half of the 500,000 tons before 1 July and the remainder before 1 August, so that the market may be cleared before the arrival of the new crop;

(6) to state in detail the method in which the concessionary undertaking proposes to proceed in the business of the purchase as assigned to it, indicating all the circumstances which may influence the due performance of the operations and the factors reckoned on for their full accomplishment.

At the same time it is enacted in the form of tender that the institution obtaining the concession shall sell the wheat purchased without giving preference to any one consignment, that it shall make the purchases gradually and in the chronological order of reception, and that all the insurance operations effected by the contracting body are to be carried out with national insurance companies. Consignments of wheat purchased will be paid for in accordance with the rates in force for the cereal.

In order to allow a profit to the institution obtaining the contract of purchase, such institution is empowered to purchase abroad and to import without payment of customs duties 100,000 tons of foreign maize.

Finally the body obtaining the contract will be subject to inspection by a Committee appointed by the Minister of Agriculture which will control all the activities of the body. This Committee will include a qualified agronomist attached to the Ministry of Agriculture, a State lawyer and an officer of the State Accountancy Section.

On the expiry of the period fixed by the Government measure for the concession of the contract, on two occasions no concession could be made, because there were no tenders. The sum to be advanced for the purchasing operation was certainly large, but it was not on account of the high figure which represented the purchase of the 500,000 tons of wheat that the national financial undertakings abstained from competing. There was in fact another powerful factor which influenced the holding back of private capital, namely, the serious risk attending the operation. The harvest was nearly due, and the forecasts were for a specially abundant crop; a further large surplus of wheat on the market could not fail to affect prices. It has already been noted that by the terms of the contract as announced the institution making the successful tender would have to purchase the wheat at the price fixed by the scale at the time of making the purchase. If after the grain was bought and warehoused, there was to be a large surplus from the new crop after all requirements were met, the price would necessarily have fallen and such fall would entail a loss for the purchaser who had bought at the higher price. Moreover, the risk was still further increased by the incidence of other factors, for example, the possible deterioration of the grain purchased, either in its quality, or keeping powers, during the period of holding back, since the purchasing institutions if not equipped with premises suitable for storage of this kind, might have had to warehouse the grain in places not offering a full guarantee for the safe keeping of such large quantities of grain. It was mainly on this account that no tenders were received.

All these government measures as above described, whether achieving success or not attaining the desired object, clearly reflect the desire of the Government to tackle and to resolve a problem which so directly affects the farming inter-

ests. Keeping this objective in view and in the determination to avoid at all costs the collapse of prices which might occur at the time of the coming harvest, which, as already stated, was forecasted as exceptionally abundant, the Government took immediate steps to meet the situation, and on 9 June 1935 a law was enacted authorising the Minister of Agriculture to purchase either directly or by delegating his powers to a State Bank, with the resources of the Public Treasury, the surplus wheat which threatened to dislocate the market.

In accordance with the terms of this law, the Minister of Agriculture obtained from the Chamber the authorisation to mobilise the necessary funds and instructed the *Banco Exterior de España* to make the purchase. This institution, however, was not prepared to agree to do so, and the Minister, in the last resort, with the consent of the Chamber decided to split up the operation and to have it carried out separately by provinces. He asked for tenders from the leading agricultural associations and others offering large guarantees, and these were to carry out the purchasing operation in their territory under the inspection of the heads of the bureaux of the provincial agricultural department. This time the object was attained.

The total sum of 209,000,000 pesetas which was set apart by the Minister for this operation was obtained as follows: 30,000,000 from the Treasury, 75,000,000 from a credit granted by the Bank of Spain with the State endorsement, and 84,000,000 from the Agricultural Credit Service. Out of these funds partial payments might be made to the provincial agricultural associations whose tenders were accepted, such payments to be used for the purchase of the wheat that might be offered, with the proviso that the grain must be in good and sound condition, free from impurities or with a maximum tolerance of 3 per cent.; the purchase would be made at the price fixed for each consignment by the head of the Agronomic Section in question.

This last measure has been effective. This time the quantity of wheat to be withdrawn from the market was 400,000 tons, and of this it proved possible to purchase 372,978 tons for which 185,012,444 pesetas were paid; that is to say, the farmer received on an average 50.38 pesetas per quintal, a price which may be considered as remunerative. The difference between the quantity bought and the 400,000 tons contemplated, viz., 27,022 tons of wheat, forms the guarantee of loans incurred and not paid off by the National Agricultural Credit.

It was observed at the beginning of this article that the State was proposing to find another method of solving the wheat problem which so readily becomes acute in a country such as Spain, which has a small regular shortage of wheat but where there may occur such serious irregularities of production that in some years the supplies reaching the market may exceed the home consumption and depress the price movements. It is a question of passing from a strictly interventionist policy to trading on the open market and to a free circulation of wheat throughout the whole country.

Mention has already been made of the forms taken by this interventionist policy and an account has been given of the legislative measures relating to max-

ima and minima prices, the establishment of provincial and regional committees and also the committees for purchase and sale of wheat, and finally of the *Ley de Autorizaciones* the object of which was to withdraw from the market the surplus stocks which brought about the lowering of prices.

The measures which open the way to free trading may now be examined. In the preamble of the Decree of 21 September of the present year, which sets up the provincial committee regulating the wheat market a body replacing the regional and provincial committees which disappear, the text reads: " the Government reiterates its principle as opposed to the policy of interventions on the wheat market which is continued only under pressure of circumstances, and it awaits the approval of the law already presented to the *Cortes* and designed to bring about the establishment of purely agricultural organisation which will give a proper direction to and finally resolve the problem. "

The organisation referred to by the preamble is no other than the Wheat Consortium, *i. e.*, an institution which, in accordance with the bill now put forward, will act on all the national markets buying wheat and selling it at fair prices which will vary in the course of the year according to the season. In the scheme for formation of this Consortium special attention has been given to the establishment of the prices, since actual experience has shown that the system of standard prices uniform for the whole country, such as was in force, far from contributing to the solution of the problem merely complicates it. The rate must correspond with a fair price, and as such is considered one that covers all costs of production while leaving also a legitimate profit to the grower. This conception of the fair price embodied in the bill differs alike from the conception held by the grower and from that of the buyer, since for the former the fair price is the highest possible and for the latter it is the lowest possible. Moreover the price as established by the Consortium will not be the same in all the regions, for in Spain there are lands on which the cost of production of 100 kg. of wheat does not exceed 35 pesetas while on others outlay of at least 50 pesetas is entailed. The variation in the price of wheat according to the season is fully justified; when the commodity is one the production of which is not continuous but intermittent, as is the case of wheat, the seasonal variation of price is a consequence of the pressure of supplies at the time of harvest and it is natural that the first seller receives a price lower than sellers who hold back; otherwise all would wish to sell without delay since, apart from avoiding all warehousing risks, they would benefit by the interest on capital. The seasonal variation in the price of wheat represents economic factors as obvious as the interest on capital and the insurance premium covering all risks, including the risk of an anticipated price fall due to the forecast of an exceptionally fine crop. All these factors must be taken into account in price fixing.

The latest measure taken by the Government for the definitive solution of the wheat problem in an atmosphere of commercial freedom is of quite recent date, *viz.*, 14 November of the present year. A decree issued on that date establishes the office of Commissioner General for wheat, an indispensable office, since the constant changes of the Government on the one hand, on the other the immense range of action required of the Minister of Agriculture, made it

impossible to devote the continuous attention necessary to a question of such importance to the Nation as that of wheat. The Commissioner General is already appointed and the Government is delegating to him all the powers which the relevant legislation in force confers upon the Minister of Agriculture.

The duty assigned to the Commissioner by the decree is the examination of the scheme for the Wheat Consortium which is to organise definitely the wheat market, in the conditions of trading in a free market, and while waiting for the approval of the Chamber for the bill to establish a provisional regime, simple and less interventionist than that in force, while at the same time sufficiently strong to encourage elasticity on the market, which at present is greatly hampered by the numerous laws that have been successively enacted in recent years.

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## HAIL INSURANCE IN SPAIN

In 1934 the following private companies were operating hail insurance in Spain.

### MUTUAL INSURANCE SOCIETIES.

"Caja de seguros mutuos contra el pedrisco," founded in 1917 at Madrid by the Spanish Farmers' Association.

"Mutua española de seguros agropecuarios," founded at Madrid by the National Catholic Agrarian Confederation.

"Mutua de seguros agrícolas," founded at Madrid by the co-operative action of owners of farms in Spain.

### SPANISH AND FOREIGN LIMITED COMPANIES.

"Covadonga," a limited insurance company of Madrid, Alarcón, founded in 1924 with a share capital of 5,000,000 pesetas and a paid up capital of 1,250,000 pesetas.

"La Compagnie d'assurances générales," Paris.

"L'abeille-grêle," Paris (1).

Private insurance companies in Spain come under the Commercial Code and under special laws relating to the supervision of insurance companies, for example the law of 14 May 1908 and the regulations of February 1912 (2).

The law of 1908 has had precedents in Spain in regard to State supervision of insurances. By article 32 of the Finance Law of 5 August 1893 the insurance companies or societies were bound periodically to submit the balance sheet of their operations and to deposit values representing their mathematical reserves. A

(1) *El progreso agrícola y pecuario*. Madrid, 22 September 1935, p. 560.

(2) Angel DE TORREJÓN y BONETA. *Economía y valoración agrícola, forestal y urbana*. Madrid, p. 33.

further step in the direction of inspection was made by article 43 of the Finance Law of 30 June 1895 as completed by a measure of 21 January 1896.

It was, however, the law of 14 May 1908 which actually laid the foundations of a methodical and permanent inspection and supervision. This law contains four chapters and some temporary provisions.

Chapter I entitled *General Provisions* is the most important. By Article 1 there are brought under the provisions of the law all undertakings the object of which is to effect insurances on human life by means of companies with fixed premiums, mutual societies or share-out clubs, on moveable or real property and in general on any risk. Such undertakings may exist for any purpose, may have any form or any designation; they must be registered at the Ministry of Agriculture. For the purposes of the application of the Law, there are considered as national enterprises those which have their headquarters in Spain, and are not either affiliated to or branches of foreign companies. By the terms of article 3 there are excepted from the provisions of the law, the Monts-de-piété, mutual aid societies, local thrift associations, whether municipal or provincial (1), as well as institutions undertaking insurance on land or sea transport, formed in accordance with the Commercial Code. Article 10 reaffirms that institutions insuring against accidents in work are subject to a special regime (2).

Among other necessary formalities required by Article 2, for obtaining registration, the societies or companies must, as a preliminary, deposit, in values as fixed by the law, a security which amounts to: for national or foreign life insurance companies, 200,000 pesetas, if foreign on condition that they belong to a country granting legislative reciprocity, otherwise the security for foreign companies is 500,000 pesetas. For other insurance institutions the security may amount to from 5,000 to 100,000 pesetas.

By article 4 and the following articles, the conditions under which registration may be refused are laid down, and also the possible methods of appeal against the refusal of registration.

Chapter II is devoted to guarantees. These consist in the first place in certain injunctions in regard to publicity, and secondly, and especially, in the investment of the funds of the companies — in values determined by the law — in the deposit of these funds in the general Bank of deposits, and in the compulsory constitution of mathematical reserves. Foreign companies operating in Spain are required to constitute mathematical reserves, not only for the insurances arranged and transferred abroad by them or by their branches or affiliated bodies in Spain, but also for the insurances arranged by them on Spanish soil (art 20). They are further required to keep special books, drawn up in Spanish, for all operations effected by them in Spain; their policies and contracts must be prepared in Spanish. These provisions of article 22 of the law repeat those of article 12 of the French law of 17 March 1905.

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(1) The same exceptions are to be found in Article 1 of the French law of 17 March 1905

(2) Law of 30 January 1900 (*Annuaire de législation étrangère*, 1901, p 284).

Chapter III establishes an advisory Committee in insurances and a body of insurance inspectors with the duty of supervising and inspecting the companies. Chapter IV states the penalties in respect of any violations that may occur of the provisions. The law concludes as already stated, with some temporary provisions (1).

The public authorities have been actively engaged with agricultural insurance during recent years (2). In 1919 the State, by decree of 9 September, established the National Organisation of Agricultural Insurances (*Mutualidad Nacional del Seguro Agropecuario*), one of the most immediate objects of which was hail insurance. The field of activity of this organisation rapidly developed, and on 26 September 1929, it was transformed by decree into the Commission of Agricultural Insurances with widened scope. The directive impulse given to national insurance by this organisation, alike in its earlier and in its subsequent form, proved a stimulus to private insurance. Later, however, insurance under direct State management was abolished, and the Commission was transformed into a Section of Agricultural Insurances with a more limited field of action, dealing only with reinsurance or farm risks, especially of hail damage, this latter being now the branch best known. In accordance with the terms of the decrees of 23 April and 18 June 1930, insurance companies, the risks of which had been reinsured by the Section, had the right to compensation for hail damage, and also to valuation costs.

In 1934 a very important decree dated 11 January greatly widened the range of State activity in the sphere of agricultural insurance.

The following is an account of the main lines of the organisation of this form of State intervention.

Under this enactment a clear distinction was established between insurable and non-insurable farm risks. To the former class belong, as well as hail insurance, also forest fire and farm fire insurance, and insurance against live stock mortality and against incapacitation of stock.

As non-insurable risks, on the other hand, are considered risks from drought, frost, floods, persistent rains at critical periods, hurricanes, and finally risks due to plant diseases and pests.

Protection against hail risks as also against all other insurable risks is carried out by the State by means of reinsurance contracts, with or without compensation for losses, by subsidiary insurance contracts, or by establishing a direct State insurance service, either voluntary or compulsory.

The reinsurance, or subsidiary insurance, contracts are arranged for a period of one year, and may be extended year by year for a further period of two years without any modification in terms. A decree of 19 January 1934 prescribes that application must be made for these insurance contracts and their extensions

(1) P. SUMIEN in the *Annuaire de législation étrangère* published by the Société de législation comparée. Paris, 1909, p. 353.

(2) *Boletín del Instituto de Reforma Agraria*. December 1933, p. 265.



before 31 October, and that the terms should be finally agreed before the end of the following month of November.

Provided that it undertakes agricultural insurance and fulfils the conditions to be stated below, any society or company may enter into reinsurance or subsidiary insurance contracts with the State. The societies are required: (a) to have obtained due authorisation from the insurance and thrift inspectorate to operate in Spain; (b) to fix their regular premium rates and supplements in such a way as to cover the expenses of insurance and reinsurance, taking into consideration the scale of exemptions as accepted, or calculated by the State; (c) to recognise the right of the State to satisfy itself as to the accuracy of all the particulars which refer to the work of these societies or companies, as also its right of inspection and intervention in the assessment of damage or losses, (d) to submit, in the event of disagreement as regards the assessments, to the judgment of an umpire or of three official experts, one of whom shall be appointed by the State; (e) to have recourse, in the event of any doubt as to the interpretation of the contract, to an arbitration tribunal, consisting of the head of the Service of insurance and thrift attached to the department of Thrift and Social Policy, of a member of the Council of the Service appointed by the said Council from among the representatives of the insurance organisations, and an official appointed by the Director-General for Agrarian Reform. Such recourse may be had without prejudice to the right to make further appeal to the ordinary courts.

Mutual insurance societies are required not only to conform to the above conditions but must also bring evidence that: (a) they constitute a single society and that they operate over the whole of Spain whatever may be the branch of insurance they undertake; (b) that they are forming federations of mutual insurance societies within the limited radius of activity whatever may be such radius and whatever the branches of insurance so operated, and that, linked together in such organisations, they operate over the whole of the national territory; (c) that in the case of their operating hail insurance, their membership consists of at least 500 full members, and that, in the case of their operating insurance for more than two kinds of crops, their total assured capital amounts to at least 5,000,000 pesetas. The required figures as regards membership and total of assured capital have to be doubled in the event of the societies in question covering risks on one or two kinds of crops only.

These conditions may be modified by ministerial ordinances, when circumstances require it, and after the necessary information has been communicated to the proper quarter.

Mutual insurance societies which conform to the rules set out, and which do not offer a choice of risks, nor, in general, place a limit to the acceptance of risks, may make application to enter into a reinsurance contract with the State and may choose between two forms of reinsurance: a reinsurance without compensation for losses on the basis of a share which shall not exceed 90 per cent. of all risks and of a maximum commission of 30 per cent. on the premiums; and a reinsurance with compensation for losses on the basis of a share not to exceed 75 per cent. of all risks, and a commission on the premiums which must not exceed 25 per cent.

Societies are to retain on their own account at least 25 per cent. of each risk.

When the reinsurance by the State takes the form of a contract with compensation for losses and reinsurance of 75 per cent. of the losses, such compensation may amount to 100 per cent. of the losses insured by the mutual insurance societies, including the costs of valuation. When on the other hand less than 75 per cent. of the risks are reinsured by the State — whether the insurance society has or has not reinsured the remainder with another society — the liability of the State must not exceed that corresponding proportionally to the percentage established by the contract.

The percentage of liability for the compensation of losses is to be stipulated in the contracts and in certain cases for which provision is made in the law it may be limited by the State if circumstances make this advisable.

Limited companies and mutual insurance societies which operate or offer choice of risks or which limit their acceptance of risks, may enter into reinsurance contracts on the basis of a maximum share of 50 per cent. of all risks, no compensation of risks however being stipulated. On its side, the State may reinsure excess of risks with societies legally authorised to effect hail insurance in Spain. For this purpose there may be considered as excess any portion exceeding 5 per cent. of the total of the original risks. The State cannot grant nor insure risks in reinsurance on an optional basis. As regards subsidiary insurances, the mutual insurance societies which conform to the rules established by the law indicated above, and which do not operate a choice of risks nor in general place a limit to their acceptance of risks, may make application to the State to enter into a contract of subsidiary insurance by which a maximum of 10 per cent. of the liquid premiums of the previous season may be fixed but no commission included. Such societies are to retain on their own account 25 per cent. at least of the total of each of the risks insured by them. Limited insurance companies and mutual insurance societies which operate a choice of risks or which limit acceptance of risks may not enter into subsidiary insurance contracts with the State. As regards direct insurances the law has established that the State may effect insurances of this type only: (a) in the case where there is an insurable risk not covered by private insurance. When a direct insurance on the side of the State exists and private insurance decides to operate, the direct insurance by the State comes to an end and is replaced by the private insurance on condition that this latter insurance is effected in accordance with the guarantee conditions required for the insured persons; (b) when the private undertaking effects insurance with an evident bias in favour of the insured persons; if however the causes of this bias disappear, then the direct insurance by the State comes to an end; (c) in the case in which on account of the special character of the farm property, the State is directly concerned in its preservation, protection and development and for this purpose it assigns fixed grants. In such a case, the direct insurance is to be undertaken by the service of protection against the insurable risks, or by any other service considered to be the most appropriate for the purpose contemplated, it being understood that a special authorisation is required, and that, if the

service of protection has not the direct management, it should have the preference as reinsurer or subsidiary insurer.

In order to guarantee its action of protection the State reserves to itself the right to carry out an inspection through its experts and at any moment of the social and economic activities of the societies with which contracts have been made, as well as to intervene when it is considered advisable in the event of losses or of the valuations arising out of the reinsured losses even if there are no relations existing between these societies and itself.

In no case may rates for agricultural risks be established by these societies on any technical basis which would result in net premiums less in value than those calculated or approved by the State.

In view of fulfilling the obligations contracted in consequence of its protective function of insurable farm risks the State is to include in the budget the sums required for covering any deficits due to the excess of the total of losses and costs over the premiums received or to the total of the compensation of losses in the case of reinsurance. Such entries on the budget may be accumulated in such a way that in favourable years the surpluses may be paid into a general reserve fund which will make it possible to pay in years of disaster, the whole or a large proportion of the losses without involving the State in fresh sacrifices.

When the total of the general reserve reaches at least 2 per cent. of the capital reinsured, directly insured or the object of subsidiary insurance by the State in the course of the previous year, the entry in the budget may be omitted or reduced until the reserve in question falls to a level lower than 2 per cent. In the years when the total of premiums paid in exceeds the compensation sums and the costs, the surpluses so arising must be accumulated with the payments made by the State with the view of increasing the general reserve.

Mutual insurance societies which conform with the provisions of the law and which do not operate a choice of risks nor limit risks, and which have surpluses of premiums over compensation payments, are obliged, in the same way as the National Service of Agricultural Insurances, to form or to add to a general reserve intended to cover the deficits which may occur in the course of disastrous years, and that even if this obligation does not spring directly out of contracts.

The State undertook, starting from the date of the entering into force of this law, not to grant any extraordinary credit intended for purposes of relief of persons who have suffered losses in consequence of insurable calamities affecting agricultural or forestry enterprises, provided that the sums, entered on the State budget for the purpose of protecting agriculture against agricultural and forestry risks, amount at least to one per cent. of the capital reinsured or directly insured or subject to subsidiary insurance during the previous year. The undertaking made not to grant extraordinary credits holds also in the case when the credits established by the State in view of covering the surpluses of losses and costs over premiums, cease or are inferior to one per cent. of the total of capital reinsured or insured in either of the ways indicated.

The agricultural insurance department, which has assumed the name of the National Service of Agricultural Insurances (*Servicio Nacional de seguros del*

*campo*) has the function of applying the protection established by the law, and acts under the Ministry of Agriculture. It is attached to the Institute of Agrarian Reform in the capacity of this latter body of representative and manager of the public administration. The National Service of Agricultural Insurances undertakes the conclusion of contracts of reinsurance and of subsidiary insurance under the prescribed forms and conditions, provided that the economic conditions and the organisation of the societies who apply for this form of State aid so permit.

This Service established costs, constitutes and adds to reserves, invests the funds at its disposal in State values, administers the reserves so constituted, and if necessary, also the residue still remaining of the foundation capital of the former *Mutualidad Nacional del Seguro Agropecuaria* which capital was placed by Decree Royal of 13 June 1930 at the disposal of the Service of Agricultural Insurances.

The expenses of this Service are covered by the following receipts: (a) a supplement on the premiums, capital sums or policy costs, such supplement to be fixed each year in the contracts but never to exceed 5 per cent. of the premiums; (b) the interest from the investment of the reserves; (c) the commissions collected for risks assigned in reinsurance; (d) subsidies that may be granted by the provincial Chambers, the communes and other institutions of public character; (e) donations and bequests made by private persons; (f) any other receipt not here contemplated.

The surpluses from the recovery of costs, which may be obtained in the course of each working year, are assigned to form a special reserve known as an auxiliary reserve, which is used to subsidise at their inauguration mutual aid funds or banks for non-insurable risks when such are legally constituted. This reserve may also be used to reconstitute the working capital of the former National Insurance organisation for agricultural insurance.

The law enacted further that so long as the Service of Agricultural Insurances cannot cover expenses from its own resources, the Institute of Agrarian Reform will be expected to enter on its budget, as was the practice up to the date of the publication of the law of 1934, the sums required for the upkeep of this Service.

Protection against non-insurable risks is afforded by the State either in the form of direct grants in aid made in the case of damage by hurricanes or floods, or through the stimulus given by it to the formation of mutual aid banks.

The assistance in the form of grants is intended exclusively for the encouragement of public works of agricultural interest, which may come to the help of affected areas, and for this reason these grants can never be used for the compensation of individuals.

The Council of Management undertaking the administration of these relief measures and constituted for the purpose in close connection with the Ministry of Agriculture has the duty of determining the quality and quantity of the work which has to be carried out in each case.

The total sum employed in this way must not, according to the law, exceed 25 per cent. of the losses as ascertained by the technical staff: the distribution is to be determined by the Council of Management.

No advances may be made on any pretext whatever in respect of grants in aid which are to be assigned. Moreover the sums approved for any disaster will be granted on a provisional basis only until, at the end of the year, it becomes possible to determine the precise amount available for each case.

The grants in aid made by the State are debited to a special fund of the budget. This fund may accumulate the surpluses obtained in the more favourable seasons, forming a supplementary reserve which is to be employed in the course of years in which disasters occur. If a special heading has not been established in the budget, an extraordinary credit must be granted for the same purpose. In other cases of non-insurable risks, other than hurricanes and flood, the State has undertaken in accordance with the law of 1934, to encourage the formation of mutual aid banks maintained by the farmers themselves: such banks must be authorised to function by the competent bodies.

These banks may receive subsidies from the National Service of Agricultural Insurances whenever there are in existence funds in the auxiliary reserve.

Banks or funds of this character and receiving technical or financial assistance from the State may be inspected at any time with a view to supervising or facilitating the normal course of their working. Banks formed apart from State aid can only be inspected if one-third of their members so require.

As regards premium rates, the latest classification of agricultural products for insurance against hail is as follows

#### First Class.

*Roots, tubers and bulbs:* rape, turnips, carrots, radishes, parsnips, sugar-beet and fodder-beet, potatoes, Jerusalem artichokes, sweet potatoes, edible sedges, yams, garlic, onions, leeks, shallots, etc. — *Natural and sown grasses, etc.:* Lucern, clover, sainfoin, Spanish sainfoin, ray-grass, feenugreek, brome grass, meadow grass, etc. — *Aromatic plants* (with the exception of tobacco and anise): tea, hops, cumin, etc. — *Oleaginous plants:* peanut, castor oil plant, colza, poppy, sunflowers, sesamum, etc. — *Mulberry leaves:* for silk-worm food

#### Second Class.

*Winter cereals* (with the exception of oats and barley). wheat, rye, spelt, meslin, etc. — *Maize and panicum*

#### Third Class.

*Summer cereals* (with the exception of maize and panicum): rice, guinea corn, buckwheat, millet, canary-grass, etc. — *Oats and barley. Amse.* *Colouring plants:* saffron, bastard saffron, woad, madder, etc. *Farinaceous vegetables:* haricots, tares, chick-peas, carobs, lentils, blue vetch, lupins, beans, vetches, peas, dolichos, soya, etc. — *Fodder plants for seed.*

#### Fourth Class.

*Textile plants* (with the exception of hemp): linen, cotton, China-grass, esparto grass, aloe, etc. — *Nurseries of bedded out plants.* — *Varieties of fruit trees with dry fruit:* almonds, filberts, chestnuts, walnuts, etc.

### Fifth Class.

*Spring fruits:* apricots, strawberries, cherries, figs, medlars, etc. — *Osiers.*  
*Beetroot for seeds.* *Tobacco of current qualities for cut tobaccos.*

### Sixth Class.

*Hemp.* *Nurseries for grafted fruit-trees.* *Market-gardens:* melons, water-melons, gherkins, capsicum, tomatoes, egg-plant, cucumbers, etc. — *Tobacco:* good quality, for cutting. — *All plants grown in kitchen-gardens and intended for direct consumption.*

### Seventh class.

*Summer and autumn fruits* (with the exception of apples and plums): pears, peaches, quinces, figs, pomegranates, etc. — *Wine grapes.* *Olives for the production of oil.*

### Eighth Class.

*Apples and plums.* *Table grapes.* *Olives for direct consumption.* *Oranges and lemons.*

### Special Class.

*Tobacco, fine quality, for cigars* — *Ornamental and garden plants and their flowers.* *Teasels or wool-carders.*

In regard to the quota for this class, a consultation should be held before the insurance is accepted.

The tariffs of the premiums vary considerably, not only in the different provinces, but also in the jurisdictions of each province and even in each commune of the jurisdictions.

The following table shows the minimum, average and maximum premiums of each class for the insurance of capital of 100 pesetas:

Premiums	Classes							
	I	II	III	IV	V	VI	VII	VIII
Minimum . . . . .	0.60	0.80	1.10	1.40	1.80	2.15	2.50	2.85
Average . . . . .	2.20	2.40	3.20	4.00	4.80	5.65	6.50	7.25
Maximum . . . . .	3.30	4.40	5.00	6.00	7.00	8.00	9.00	10.00

A compulsory supplement of 15 % must be added to all the above-mentioned premiums.

In accordance with a decree issued by the Minister of Finance (*Gaceta* of 28 June 1934) there has been established under the auspices of the Central Commission for experiments in tobacco growing, a system of insurance against hail which includes all the tobacco crops in Spain. Re-insurance is guaranteed and will be effected principally through the National Agricultural Insurance Service. The Regulation appeared in the *Gaceta* of 6 July 1934.

The following figures show the amounts insured and the compensations paid by insurance companies during the period 1930-34:—

Insurance Companies	Capital insured pesetas	Compensation paid pesetas
Covadonga . . . . .	124,457,198.00	3,758,222.58
L'abeille-grêle . . . . .	81,047,982.00	1,972,443.48
General Insurance Company . . . . .	50,205,804.00	948,518.23

In the course of 1934 the benefit societies recorded the following data —

Insurance Societies	Capital insured pesetas	Compensation paid pesetas
Caja de Seguros mutuos . . . . .	49,770,322 99	940,541.40
Mutua Española de Seguros agropecuarios . . . . .	18,832,217.79	724,120.00
Mutua de seguros agrícolas . . . . .	13,141,019.50	(1) 149,233.02

The following table shows the figures recorded for the period 1930-34:—

Year	Capital insured pesetas	Compensation paid pesetas
1930 . . . . .	32,055,448 00	1,906,578 00
1931 . . . . .	30,915,260 00	599,686 00
1932 . . . . .	42,309,766 00	1,579,520 00
1933 . . . . .	42,637,864 00	(2) 2,392,275 00

F. ARCOLEO.

## BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

PROCEEDINGS OF THE THIRD INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS, Bad Eilsen, Germany, 26 August-2 September 1934, p 498 Oxford University Press, London, 1935.

The Proceedings of the third international conference of agricultural economists held at Bad Eilsen (26th August-2nd September 1934) deserve a detailed mention. The material which was presented by the economists who attended that meeting and the discussions that followed have lost nothing of their interest in the intervening months. The conference was attended by 170 delegates from all parts of the world. Its unofficial character did not impair its importance if anything, it increased it, as a number of delegates who held high official positions in their respective countries, were thus free to express their views in their private capacity

The programme of the Conference " was prepared with the purpose of emphasizing the significance of national policies and aspirations, their interaction in the modern world, and the international problems of economic relations which result, all with special reference to the sphere of agriculture (3). " It differed from the programmes of the

(1) *El Progreso agrícola pecuario*, No. quoted, p. 560.

(2) DE TORREJÓN y BONETA, *op. cit.*, p. 41.

(3) Proceedings of the International Conference of Agricultural Economists - Introduction.

two preceding conferences (1) in which "considerable attention has been given to the technical problems of agricultural economic research, but in view of the gravity of the world conditions in the period 1930-34, it was decided that the Third Conference should devote its whole time to a study of national and international policies and that the question of research method should be omitted." It was decided to divide the programme into four sections, of which the first dealt with the national policies of various countries "special emphasis being laid on the forms, stages and limits of economic planning."

The second section of the programme dealt with the social and economic organisation of farms, including the family and peasant farm and the large scale capitalist or corporation farm (2).

The third section dealt with some particularly interesting aspects "of the trend of natural forces governing supply and demand." The problems of international currency and international debts and those dealing with trade agreements between nations and attempts at international agreements for the control of production or of marketing constituted the subject matter of the fourth section.

The purpose of the Bad Eilsen meeting was most authoritatively outlined in the address of Professor Max Sering whose efforts were responsible to a considerable extent both for its careful preparation and remarkable success.

Professor Sering, in his paper on "The World Economic Crisis" which constituted the introductory stage of the meeting, gave a clear account of the primary causes of the world crisis chiefly, among them, the economic disorder created by the position of Germany as a result of the peace treaties, the transformation of the U. S. A. from a debtor to a creditor nation and the "capitalists' anarchy, which at the time of improving trade, planlessly invested large capital sums where there was a prospect of monetary profit, and produced a chaotic overproduction of many commodities. In the time of depression this anarchic system just as planlessly withdrew the capital sums in order to bury them again in vaults in the form of paper notes or yellow metal (3)."

From its beginning the Conference had to take notice of the fact that order could be restored only through some form of planning. Most countries, Professor Sering stated, more or less of necessity, and often without noticing it, came into the path of socialistic planning; most of them, in the fight against the economic crisis have groped their way from one emergency measure to another. But national planning schemes, in order to lose their character of emergency measures mostly destined to failure, must, according to Professor Sering, be brought into harmony with one another. This national harmonisation of economic measures to combat the crisis cannot fully attain its purpose unless parallel measures are taken in external trade, seeing that complete self-sufficiency is impossible. Hence the necessity of national planning with a view to international trade and co-operation. "I consider," Professor Sering said, "it to be one of the essential tasks of this Conference to awaken the consciousness of a common destiny and of international solidarity," and concluded thus "as men of science we will not limit ourselves to the examination of the value of the individual measures taken. We will, considering the whole world and calmly pondering on all relevant facts, try to answer the question:

(1) The first Conference which took place in England in the summer of 1929, was of a preparatory character. The second assembled in 1930 at Ithaca, U. S. A., and it was there that the purposes of the meetings were fully defined and the Statute of the Association elaborated and approved.

(2) No paper on this particular type of farming was read.

(3) v. Proceedings of the International Conference of Agricultural Economists, pp. 23-39.



whither does the policy started during the crisis lead? Where are we to draw the boundaries of a public, planned economy, the boundaries for the socialisation and nationalisation of industry? The programme for this meeting has been drawn up by the Executive Committee in this sense. May it be of value to all peoples represented here and to humanity at large."

As outlined in the programme, Section I of the Proceedings dealing with national policies to combat the agricultural crisis, Dr. J. P. Maxton read a paper on measures taken in England, beginning with the Land Utilisation Act, dating back to 1931 and destined to provide employment for large numbers of unemployed. Also in 1931 the Agricultural Marketing Act was enacted which was described as "giving effect to the principle of compulsory co-operation in agriculture." The Horticultural Duties Act, the Import Duty Act and the Wheat Act followed in quick succession. But by far the most important attempt made by England to face the crisis was the Ottawa Agreements in August 1932. Mr Maxton is of the opinion that all these measures fell short of their intended purpose, namely to "build agriculture both for production and marketing on an economically efficient basis." He believes, however that the machinery which the marketing schemes and to a less extent the import regulations are establishing to-day cannot fail altogether and will remain at the basis of the present agricultural policy of Great Britain.

Switzerland has had her share of economic planning and control and agricultural co-operation, of which Professor Laur gave the Bad Eilsen assembly a careful outline. He also believes that there is no possibility of a return to individual action and that State control, however mild and limited, is necessary for the success of agricultural relief measures equal to the seriousness of the present crisis.

Professor von Dietze of the University of Berlin and Professor Tassinari of the University of Bologna reported on relief measures for combating the agricultural crisis in their respective countries. In both cases government control is advocated as the surest means to combat present difficulties and insure the future welfare of both the State and the agriculturist. It seems then that deficient countries with intensive farming methods (Great Britain and Switzerland) and deficient countries approaching self-sufficiency (Germany and Italy) are agreed in a greater or lesser degree that the economic and agricultural crisis of the last five years has caused the adoption of measures by the Governments themselves and that Government control will not cease with a return to normal conditions. Such is also the opinion we find expressed in two of the most interesting papers read at the Bad Eilsen meeting by Professor S. L. Louwes and by Professor Otto von Franges, dealing respectively with the regulation of agricultural production in the Netherlands and with the fight against the crisis in the peasant countries of the Danube basin.

Canada and the U. S. A., the most perfectly mechanized countries in the world, have had and still have their problems to face to solve their agricultural crisis. As far as Canada is concerned, the chief measures taken by the Government to combat the worst features of the economic and agricultural depression were: (a) Price stabilisation; (b) bonuses on wheat growing; (c) imperial preferences in trade; (d) provisions of credit; (e) marketing legislation. Professor J. E. Lattimer, who dealt with the Canadian situation at Bad Eilsen, came to the conclusion that the most important relief measure was the imperial preference in trade. The Ottawa Trade agreement succeeded in improving the export outlets for some farm products. The other provisions have proved more limited in their effectiveness against agricultural trade depression.

A more cheerful outlook as regards State agricultural planning is to be found in the paper on the agricultural situation in the U. S. A., read by Dr. O. C. Stine of

the Bureau of Agricultural Economics. It is undeniable that the measures adopted by the American Government during these last years to relieve the economic and particularly the agricultural crisis have met with marked success in more than one field.

Indeed one may say that, in spite of failures in some respects, the U. S. A. relief measures have made some real progress on the road towards the recovery of normal conditions for agriculture and industry. In Dr. Stine's opinion national planning and re-adjustments which practically every nation has undertaken, cannot fail to pave the way for a resumption of international exchanges leading to "the recovery towards normal international trade in agricultural products." From the American view-point, the task of the U. S. A. as a producer for export has not been obliterated by the crisis and its consequences on international trade. Dr. Stine in fact believes that the importing countries will want American products again and suggests that America do her planning in such way as to adjust its production to their demand. In Section II of the Conference a report on the formation of new small holdings in Italy after the war was presented by Professor Lorenzoni.

In absolute contrast with the opinion of the majority of the experts who attended the Bad Eilsen meeting, Professor Ashby of the University of Wales, maintained that the family farm system, which implies the notion of medium size and small holdings, implies also a tendency towards subsistence farming. The strictly economic side of the farming industry is thus lost sight of.

In spite of its social value, which Professor Ashby is ready to admit, the family farm system in his opinion is destined to fail in view of the modern tendencies of education, transport, and of general communication which promise the more rapid assimilation of the general standards of living of agriculturists to those of the national community. Only a return to more primitive conditions of industry and life could save the family farm, and it is questionable, Professor Ashby argues, whether the cost of saving it would be justified anyway.

On the basis of conditions prevailing in his country, P. Borgedal, of the Agricultural College of Norway, seemed to incline towards the theory that medium size agricultural holdings best meet the requirements of an economically well organized farming unit. The social value of both farm and farm family is highly emphasized in the Norwegian expert's paper. A few remarks by Professor Warren of Cornell University sounded as a direct refutation of Professor Ashby's theories. "The higher the education of the farmers, the greater the advantages of the family farm; the better developed the co-operative movement, the greater the advantage of the family farm; also the higher the wages in terms of farm products, the greater the advantage of the family farm," Professor Warren said, and he added that the capitalist farm, or estate system has a steadily growing disadvantage, or lessening of its advantages.

Two German experts, Professor Lang of the University of Königsberg and Mr. Schiller of the German Embassy at Moscow gave the Bad Eilsen gathering two enlightening accounts on the farming situation and farming problems in Soviet Russia. Professor Lang's paper was decidedly critical of the Russian collective and State system of farming which he found destructive of natural wealth, inefficient and lacking organising ability. Still he believes that the prodigious experiment which is being made for the reorganisation of Russian agriculture cannot be ignored.

Another contribution on the subject of collective farming came from Dr. A. Schürman, who pointed to the difference in the attitude towards collectivism of the Russian and the German peasants.

The population problem in its relation to agriculture was dealt with in Section III of the programme. What is the future of agriculture going to be if the present trend

in the growth of population continues? It cannot be denied that the problem of a waning population appears at present, both to economists and politicians, as rather serious and even alarming. Professor Whelpton of Miami University, who with Dr. E. O. Baker of the Washington Bureau of Agricultural Economics contributed very important papers to Section III of the Bad Eilsen programme, discussed the population prospect in Great Britain, Germany, Italy, Denmark, France, Belgium and the U. S. A. His conclusions were that unless steps are taken to check the regress in the birth rate, the population of North-Western Europe and North America will begin rapidly to decline within twenty years. The consequences of this decline on agriculture will be disastrous, according to Professor Whelpton, who suggests that two courses be followed, one dealing with goods and the other with people. "Under the first a longtime programme will be developed for increasing the per capita purchasing power of the population, particularly of those large masses who are now little above a mere subsistence level, and for controlling production so that it will be in line with this demand. Under the second the attempt will be to check the decline and even cause an increase in the birth-rate and the population growth by putting into effect economic measures to lighten the burden of child rearing on the family, and by endeavouring to change social attitudes so that individuals will be brought to feel more responsibility for the perpetuation of the race."

Dealing with the population problem more in detail as regards the U. S. A., Dr. Baker could not arrive at a more encouraging conclusion than his colleague. There has been a 20 per cent. decline in the birth-rate in America in the past decade. The closing of the American continent to immigration and other factors have contributed to this decline which will continue unless the American people realise the serious situation which threatens them and show themselves willing to "adopt an altered philosophy of life": in other words Dr. Baker fully agrees with the conclusions of Professor Whelpton.

The monetary situation was discussed in Section IV of the [programme]. One of the most distressing aspects of the world economic condition was deemed by the experts who met at Bad Eilsen to be the disorder into which the monetary system has been thrown by the war and its aftermaths. Naturally this disorder has heavily affected the field of agricultural economy. In a carefully detailed paper Professor Warren of Cornell University showed how the price of basic commodities fell after the war as compared with pre-war conditions. He expressed the opinion that currency instability is disastrous to modern society, and advocated a complete revision of the rules controlling the monetary system. In his view private enterprise in this difficult field has entirely failed, and some form of control will have to be devised to restore a certain amount of order in world monetary matters.

Professor Schumacher of the University of Berlin, who spoke on the currency problems of our time, appeared to be more hopeful of a restoration of order out of monetary chaos.

It is beyond the limit of this review to go into a detailed account of the paper read by the President of the Reichsbank, Hjalmar Schacht, in whose opinion a complete revision of the peace treaties and of the general application of their clauses is essential for the economic recovery of the world. The number of graphs and tables which illustrate Dr. Schacht's contribution to the work of the meeting are an impressive documentation of the world economic situation in the midst of an unparalleled crisis, of which Dr. Schacht cannot see a solution unless equality of rights and duties is re-established between the two groups of nations that fought as enemies in the great war.

The failure of gold to maintain its stability in the present crisis was illustrated at length by the Dutch expert M. D. Dijt. In his opinion the world economic system

has been upset by over-production and deflation at the same time. The remedy lies in a system by which "the agrarian staple products, such as wheat, sugar, cotton, coffee and rubber, produced in excess from time to time, would be used to increase the money circulation, in much the same way as the enormous gold over-production is used to-day for increasing the money in circulation." The question of international debts and their influence on agricultural prices was treated by Mr. R. R. Enfield, of the English Ministry of Agriculture. Mr. Enfield emphasized the fact that a decline in demand resulting from deflation which in its turn was accelerated by the situation of debtor countries and the restriction of trade whereby these countries attempted to maintain the balance of payments, was responsible for the fall and the persistent low level of agricultural prices.

It remains now to draw some conclusions from the great mass of material which the Bad Eilsen experts had assembled and discussed. The outstanding feature of the work of the meeting was the unanimity of the opinion that the world is suffering from a crisis which only international action and international co-operation can meet and hope gradually to solve. Trade agreements between nations, as illustrated in Mr. Winter's paper on the new tendencies in international trade policies; regional pacts such as those concluded by the bloc of the Little Entente (Yugoslavia, Rumania and Czechoslovakia), the Ottawa agreements, the agreement of Italy with Austria and Hungary and several other similar ones, as well as the adoption of international schemes for the regulation of supply as discussed by Mr. E. M. H. Lloyd of the London Market Supply Committee, brought into relief the fact that the need for international action is universally felt and is universally deemed to be the only remedy against the worst crisis the world has ever known. In the words of Dr. Henry C. Taylor no historical precedents can be used as models for the future plans for international trade. Government planning as a corrective of individual action should, in Dr. Taylor's opinion, avoid the danger of overreaching its goal. There is a tendency, particularly in Europe, to make each country self-sufficient. Nationalism intelligently promoted, Dr. Taylor said, does not imply autarchy. It is quite possible to promote international trade without renouncing to a rational economic policy wisely tempered by the spirit of nationalism. Trade barriers cannot be battered down without government action, and the flow of international trade cannot be restored without specific international agreements. But government action in this field must rest on a sound economic basis, which takes into account actual facts. Economists must indicate a clear and comprehensive fact-basis of international planning. It is not an easy task; but it must be undertaken and carried out.

Those who are in control of the national policies of the different countries and know the art of dealing with international entanglements will attend to the necessary negotiations. But the light must come to them from the economists. It must be said that in that respect the Bad Eilsen meeting did not fail in its purpose.

V. F.

PRACTICAL CONDITIONS FOR SUCCESSFUL INSTRUCTION IN HOUSEHOLD MANAGEMENT AND FARMING by P. DE VUYST, Honorary Director General of Agriculture at Brussels.

(1) *Aims and objects.* — The object of instruction in farm household management is to train young girls to be women farmers, that is, to render them capable of collaborating in the work and management of the farm. At the same time it includes the training of young girls in the work necessary for keeping their homes in good order and in the care and up-bringing of their children.

Instruction in household management of a general character, or combined with vocational instruction other than agricultural, should also approach the ordinary conditions of life of the category of pupils for whom it is intended. It is advisable to give preference to vocations which may be followed in the home. All housewives should have the theoretical and practical knowledge necessary to be able to grow certain flowers, vegetable and fruits, as every housewife should have her plot of ground.

(2) *Suitable environment.* — Environment has a considerable influence on the formation of habits. How is it possible to develop rural customs in an urban environment ?

The mentality and example of the teaching staff is of importance in this respect. As, on the farm, children live and act according to the example given by their parents the agricultural school of housekeeping should exercise the same influence.

The premises also should be adapted to the object in view. All the arts, for agriculture is an art, are more easily learnt in the workshop of the master than in artificial and abnormal conditions.

It follows that the furnishings of such a school should be simple and in good taste and should in no way resemble the vulgar and pretentious furnishings which have recently invaded country districts. The Committee for Beautifying Rural Life has for some time protested against this pernicious tendency. It is easily understandable that undesirable results may be arrived at by a school that thus perverts the æsthetic and rural senses of the pupils. The farm and the home are the workshops of the woman farmer who cannot be trained under conditions which differ too greatly from those under which she will work in the future.

Relations outside the school, both with regard to teachers and pupils, should be as rural as possible. Participation in all rural work and in all forms of farming and domestic work is more effective in giving instruction in housekeeping than any other activity which is not favourable to the development of the agricultural mentality.

In all cases environment has a great educational influence and it is important to make sure that this environment, as far as possible corresponds to that of the farm, the home and the family.

(3) *Practical arrangement of premises and work* — It is indisputable that to arrive at an atmosphere of family life pupils should live together with their teachers in small groups, as in a family, in separate and, if possible, independent accommodation, rural in style and simply furnished in good taste, so as to familiarise them with the life and work on a farm.

These lodgings should be of different types corresponding to the different stages of progress in the capacity of the pupils and the work to be carried out, that is, in the standard of instruction in farming, housekeeping and the care of a family.

The Committee for Beautifying Rural Life has shown, in many exhibitions, numerous examples of practical farm accommodation which has had an excellent effect on rural construction in the country.

This Committee has frequently taken part in the organisation of the Institute of Farm Household Management at Laeken and has established a demonstration farm which clearly shows the progress that has been made. The arrangement of the buildings, in order to facilitate work and supervision, is extremely well planned, there is considerable use of electrical power in the work of the farm and for domestic purposes and the utilisation of each building to the maximum and the multiple uses of furnishings, so as to save space, all contribute towards the work of practical arrangement.

The National Centre of Studies on Household Management, for the improvement of household management throughout the country, contains a technical and scientific section, a teaching section and a social section which are devoted to studying the work that every school of house-keeping should carry out in order to arrive at the most advantageous results with a view to progress in instruction.

(4) *Programmes of study.* — The programme of theoretical and practical instruction should evidently include the principal scientific and technical knowledge necessary for a woman in her work on the farm and in the home, also for the up-bringing for her children. It is sufficient to question old pupils who have become farm rs, housewives and mothers to obtain an idea of the balance that should be maintained between education and practical work.

It has been said that the programme is overloaded with general subjects. This should be avoided as it restricts the vocational development that is in view.

It is not so much the quantity of knowledge that should be obtained as the quality. Instruction should be directed, above all, towards developing judgement and the spirit of observation and experimentation. If necessary, preference should always be given to the practical work of the school. the activities connected with farming, housekeeping and instruction should be essentially practical.

For this reason the programme should be one of *practical application* and *organisation* as it is necessary to *educate* and *develop habits* which can only be attained by the repeated application of practical work. The habit of acting and putting into practice should become second nature.

The programme of subjects should be chiefly a guide to the knowledge that should be acquired. The programme of practical work is a guide to application, that is, to organisation, collaboration, practical work and the responsibilities to be assumed.

(5) *Methods.* — It should be realised that there is an infinity of methods, techniques and systems—that certain persons succeed with certain methods and others with different systems. These methods are always capable of improvement. The best methods known today give the best results, but tomorrow better results will be obtained with improved methods.

The development of personal work in vocational, domestic and moral training should be constantly kept in view.

The proof of personal capacity is most easily obtained by a thesis presented with the final examination.

The system of marking should be arranged in such a way as to estimate all the activities of pupils during the course of the year and as little as possible should be left to the test of the examinations at the end of the year.

This complexity of objectives and desiderata will be well balanced by the Teachers' Council if the objects in view are not lost sight of. Care should be taken to curtail all accessory and secondary considerations and to concentrate on the principal objective. The great danger is that the essential will be overwhelmed by the secondary and superfluous. That which is artificial and out of the ordinary should disappear before the ordinary.

Among the conditions most suitable for successful instruction in housekeeping, the following may be recommended:

(a) *An ordinary family environment:* in accommodation, arrangement, good taste and the practical utilisation of space, also furnishing, chiefly with regard to the pupils' own rooms, etc.

(b) *A rural and homely mentality* of the teaching staff (practical instruction of a family nature).

(c) *Programme of work* for the teachers and for the pupils. Co-ordination of all initiative and activity for putting into practice the programme of work. Periodical determination of progress made. Improvement in the quality of theoretical work; diminution in quantity. Increase in practical work.

(d) *Practical methods*. Ordinary management of the farm and the home. Practical arrangement of work. Application of methods to ordinary conditions. Model demonstrations followed by application in small groups, the mistress working with the pupils as a mother would work with her daughters.

(e) *Development in the personal work of the masters, mistresses and pupils* and the documentation of that work according to a minimum of indispensable scientific and pedagogic principles.

(f) *Maximum development of the sense of responsibility* and devotion in the teaching staff and the pupils. Practical distribution of charges entrusted to pupils with a view to collaboration in carrying out the programme of work and their mutual improvement as much from the point of view of character as from the vocational standpoint.

(g) *Practical distribution of studies and practical work* Practical distribution of tests and marks according to their relative importance so as to avoid overworking the pupils and to arrive at the vocational, moral and domestic objectives that are in view.

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(1) Previous list September 1935. To be continued March 1936.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); heb. (weekly); int. (home price); irr. (irregular); mens. (monthly); n.º (number); N. S. (new series); p. a. (per annum), q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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# AGRICULTURAL STATISTICS



# MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

*The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.*

## CEREALS

*Wheat.* — World exports in May, of which the official data are now known, show an appreciable increase on those in April, normally a month of reduced trade in wheat; they thus exceed, though only slightly, those of May 1934 but their volume remains much below that expected. The forecast of a notable increase in international demand for wheat in the last quarter of the current season would no longer appear likely to be realized, as European importers have become very prudent in their purchases, in view of the good crop prospects in North America and the possibility of a substantial change in the wheat policy of Canada. The heavy fall of prices in the last few

*World net exports of wheat (including flour in terms of wheat)*  
(Million bushels)

Months	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August . . . . .	51	45	41	66	77	71
September . . . . .	42	51	48	78	74	57
October . . . . .	50	46	62	74	84	60
November . . . . .	43	41	54	67	77	51
December . . . . .	38	51	60	64	59	50
January . . . . .	42	48	62	62	54	48
February . . . . .	41	44	64	73	70	45
March . . . . .	48	50	64	74	67	50
April . . . . .	39	35	40	70	62	42
May . . . . .	45	44	52	67	81	50
June . . . . .	—	45	42	59	67	51
July . . . . .	—	46	44	45	52	53
Total August-May . . . .	439	455	547	695	705	524
Total June-July . . . . .	...	91	86	104	119	104
Total Season . . . . . 1)	570	546	633	799	824	628

1) Estimate March, 1935, probably rather high.

weeks on the international market brought a severe contraction in the volume of exports, which fell to a level even below requirements. Thus there is growing confirmation of a total world demand in 1934-35, that is, in the season ending 31 July, appreciably smaller than that expected by the leading authorities and not even attaining the very small volume recorded last season. International trade in wheat has been affected principally by the very poor demand in Europe, which has remained steadily very much below expectations and appreciably below the 1934 minima. Net imports of the European importing countries last month were scarcely 32 million bushels and in the first ten months of the season attained a monthly average of only 30 million bushels against an average of 33 million in the corresponding period last season. The smallness

*Net imports of wheat into Europe (including flour in terms of wheat).*

(Million bushels)

Months	Season 1934-35			Season 1933-34		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European Countries	Total Europe
August . . . . .	18	14	32	19	15	34
September . . . . .	20	16	36	22	13	35
October . . . . .	18	13	31	23	14	37
November . . . . .	17	12	29	22	13	35
December . . . . .	20	12	32	18	10	28
January . . . . .	12	10	22	14	10	24
February . . . . .	16	10	26	16	11	27
March . . . . .	20	11	31	22	15	37
April . . . . .	17	10	27	21	13	34
May . . . . .	22	10	32	20	14	34
June . . . . .	—	—	—	19	14	33
July . . . . .	—	—	—	21	14	35
Total August-May . . . . .	180	118	298	197	128	325 <sup>1</sup>
Total June-July . . . . .	...	...	...	40	28	68
Total season . . . . .	1) 225	1) 165	1) 390	237	156	393

1) Estimate March 1935, probably rather high

of European demand in the last few weeks leads to the expectation that total net imports into the European importing countries will only with difficulty approach a total of 360 million bushels, remaining about 30 million below those of last season.

As regards the new crops the prospects opened up by the information that reached the Institute up to the middle of July can be summarized as follows.

In Europe the weather in June, after having been rather cool and wet in the first fortnight, especially in the central and northern areas, became fine in the second fortnight, which was warm and clear almost everywhere. Development of both winter and spring cereals, already about two weeks behind at the beginning of June did not on the whole really recover until the latter half of the month. Part of the delay was made up for by the appreciable

change in crop condition at the beginning of July in the majority of European countries, as satisfactory as at the same date last year and in some cases even appreciably more so. Only in France did the condition of wheat appear distinctly worse than in 1934, due to the stormy, wet weather that prevailed up to 20 June and to the spread of take-all and weeds.

In the first half of July temperature rose sharply in many European countries though there were still storms and showers almost everywhere. Laying was not more general than usual; rust appeared in some places but the damage appears to be small and even negligible, air movement having been sufficient; hail damage has been frequent but, as always, localized.

On the whole the weather since the middle of June seems to have been favourable to crops so that the general situation in mid-July left grounds for expecting a larger crop for all cereals than was expected last month and better on the whole than that obtained last year. As regards wheat we made a provisional approximate estimate last month, placing the crop at about 1,580 million bushels for European countries as a whole, excluding the U. S. S. R., 1,175 million of this total being for the importing countries and 405 million for the exporting countries, comprising the four Danubian countries, Poland and Lithuania. As bases for forecasts the crop condition in mid-June, the area cultivated and the assumption that the weather would remain normal from then until the harvest, were adopted. Save for France, where a certain regression in crop prospects was reported, in almost all countries crop condition improved, in some to a remarkable extent. It would thus seem necessary to allow for a slight increase of 20 or perhaps 40 million bushels on the preceding estimate in order that allowance may be made for this improvement in crop condition. But, in consideration of the fact that harvests are still somewhat backward and that the damage avoided last month may still occur before the crop can be brought in, it would not seem opportune as yet to make any change in the forecast; it may, however, be observed that there is a slight underestimation with respect to present prospects. Even at 1,580 million bushels European wheat production would be very large, exceeding by almost 50 million that of last year and by about 80 million the 1929-33 average. The provisional official estimates are so far known for only nine countries, representing a little less than half the total European production. These estimates, based for the most part on crop conditions two months ago, do not reflect the improvement of recent weeks in several of these countries and are therefore liable to appreciable increase; nevertheless they already indicate on the whole an increase of 31 million bushels on 1934 results.

The three Danubian countries which are included in this group, expect on the whole a crops much larger (by about 57 million bushels) than the very mediocre one of 1934. Seeing that old crop stocks in these countries appear this year to be very small, the surplus exportable in the coming season may be estimated on the basis of these figures and taking also into account the probable surplus in Yugoslavia at 40 million bushels as a minimum and at a rather higher figure if the crop estimates improve and production of other cereals, especially rye and maize, is large.



As regards the other cereal crops in Europe, rye is reported to be abundant in the two large producing countries, Germany and Poland, where the crop is expected to be larger than last year and than the average. In the northern countries prospects showed a great improvement in the last few weeks and it is still possible that the crop may attain a total practically the same as that of last year. In the remainder of Europe and especially in the west-central zone production varies from average to appreciably above average. On the whole European rye production in 1935 appears to be slightly larger than the already very satisfactory crop of last year and well above the average.

The production of barley, mediocre in Spain according to the first forecast, which is, however, liable to increase in view of the favourable weather in recent weeks, is also mediocre in Romania, though largely exceeding the very poor crop of 1934, which was compromised by the drought in spring. Outturn promises, on the other hand, to be abundant in all the other European countries that are large producers of this cereal. Prospects as a whole indicate a production larger than that of 1934 and practically equivalent to the average.

For oats a production somewhat larger than that of last year but slightly below the average may be regarded as probable.

As regards the U. S. S. R. there is this year a remarkable agreement between official and non-official opinion on the good appearance of the coming crop. Weather in June and the first half of July, which was characterized by frequent and well distributed rains, was very favourable on the whole, especially in the south, where drought and torrid heat in the early summer are normally a serious menace to the crop. This year however, this danger has been avoided and, though the spring wheat crop is not yet completely assured, there is every probability that Soviet production will be very large in 1935. Though the internal situation as regards the feeding of a population increasing by several millions a year, makes prudence necessary in the export of cereals, present crop prospects give grounds for expecting a fairly large surplus of wheat in the Soviet Union for placing on the international market in the course of the 1935-36 season.

In North America the general rains in June and subsequently, though not so heavy in the first half of July, brought very appreciable benefit to all cereal crops, both winter and spring. They arrived too late, however, to save the winter wheats in a large part of the western zone of the prairies in the United States, where the persistent drought of spring caused heavy losses of sowings. On the basis of the situation on 1 July it was expected for the two North American countries together that there would be an increase in wheat production of about 340 million bushels with respect to 1934 and a practically negligible deficit with respect to the 1929-33 average. The weather in the first half of July, though on the whole favourable to spring wheat, was not entirely so, since the distribution of the rains was irregular in some areas, especially in Canada, where there were complaints of rust owing to the excessive moisture in Manitoba and of insufficient rain in parts of Saskatchewan and Alberta. In any case the crop prospects in mid-July, though slightly less satisfactory than at the beginning of the month, remained satisfactory

### Cereal production.

COUNTRY	BRITISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934	Average
	Thousand centals			Thousand bushels			= 100	= 100
WHEAT								
Germany . . . . .	103,700	99,926	96,910	172,829	166,539	161,514	103.8	107.0
Bulgaria . . . . .	37,313	24,947	30,951	62,188	41,577	51,584	149.6	120.6
Spain . . . . .	89,722	104,162	90,939	149,533	173,600	151,562	86.1	98.7
Greece . . . . .	18,519	17,286	9,339	30,864	28,809	15,565	107.1	198.3
Hungary . . . . .	44,657	38,895	47,124	74,457	64,824	78,538	114.8	94.8
Netherlands . . . . .	9,396	10,825	5,573	15,660	18,042	9,287	86.8	168.6
Portugal . . . . .	9,540	14,814	9,206	15,900	24,690	15,342	64.4	103.6
Romania . . . . .	61,730	45,933	64,853	102,881	76,553	108,086	134.4	95.2
Switzerland 1) . . . . .	4,586	4,007	3,380	7,643	6,677	5,633	114.5	135.7
Totals . . . . .	379,163	360,795	358,275	631,925	601,311	597,111	105.1	105.8
Canada . . . . .	2) 230,000	165,509	212,576	2) 383,000	275,849	354,294	138.9	108.2
United States . . . . .	(w) 274,800	243,600	343,717	458,000	406,000	572,861	112.8	79.9
(s) 163,800	54,861	126,547	273,000	91,435	210,912	298,6	129.4	
Totals . . . . .	668,600	463,970	682,840	1,114,000	773,284	1,138,067	143.9	97.8
Chosen . . . . .	5,375	5,561	5,361	8,957	9,268	8,935	96.6	100.3
India . . . . .	220,035	211,254	210,605	366,725	352,091	351,008	104.2	104.5
Japan . . . . .	29,453	28,597	20,187	49,087	47,660	33,645	103.0	145.9
Totals . . . . .	254,863	245,412	236,153	424,769	409,019	393,588	103.9	107.9
Algeria . . . . .	19,469	26,117	18,316	32,448	43,528	30,526	74.5	106.3
Egypt . . . . .	25,887	22,366	26,831	43,144	37,276	44,718	115.7	96.5
French Morocco . . . . .	10,673	23,351	16,767	17,787	38,918	27,944	45.7	63.7
Tripolitania . . . . .	106	139	79	176	231	132	76.2	133.3
Tunisia . . . . .	10,362	8,267	7,597	17,269	13,779	12,662	125.3	136.4
Totals . . . . .	66,497	80,240	69,590	110,824	133,732	115,982	82.9	95.6
GRAND TOTALS . . . . .	1,369,123	1,150,417	1,346,858	2,281,518	1,917,346	2,244,748	118.2	101.6
RYE								
Germany . . . . .	179,265	167,720	174,628	320,117	299,501	311,837	106.9	102.7
Bulgaria . . . . .	5,170	3,682	5,524	9,232	6,576	9,865	140.4	93.6
Spain . . . . .	13,549	12,419	12,565	24,194	22,176	22,438	109.1	107.8
Greece . . . . .	1,698	1,629	1,105	3,031	2,909	1,974	104.2	153.6
Hungary . . . . .	15,287	13,653	16,739	27,298	24,381	29,891	112.0	91.3
Netherlands . . . . .	8,713	11,081	8,604	15,558	19,788	15,365	78.6	101.3
Romania . . . . .	8,708	4,653	8,241	15,551	8,308	14,717	187.2	105.7
Switzerland . . . . .	772	695	835	1,378	1,242	1,491	111.0	92.4
Totals . . . . .	233,162	215,532	228,241	416,359	384,881	407,578	108.2	102.2
Canada . . . . .	2) 6,000	3,037	5,953	2) 11,000	5,423	10,630	210.6	107.5
United States . . . . .	29,736	8,982	19,694	53,100	16,040	35,167	331.0	151.0
Totals . . . . .	35,736	12,019	25,647	64,100	21,463	45,797	302.5	141.7
Algeria . . . . .	14	25	23	25	45	41	55.8	61.6
GRAND TOTALS . . . . .	268,912	227,576	253,911	480,484	406,389	453,416	118.4	106.1

COUNTRY	BRITISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934 = 100	Average = 100
	Thousand centals			Thousand bushels				
BARLEY								
Germany . . . . .	75,001	70,634	69,410	156,255	147,156	144,607	106.2	108.1
Bulgaria . . . . .	7,266	4,090	7,184	15,139	8,522	14,966	177.6	101.2
Spain . . . . .	41,024	61,996	50,358	85,469	129,161	104,914	66.2	81.5
Greece . . . . .	5,049	4,721	3,759	10,518	9,836	7,831	106.9	134.3
Hungary . . . . .	13,060	11,992	14,640	27,209	24,983	30,501	108.9	89.2
Netherlands . . . . .	2,434	2,182	1,643	5,071	4,546	3,422	111.5	148.2
Romania . . . . .	24,251	19,210	43,553	50,524	40,021	90,737	126.2	55.7
Switzerland . . . . .	220	224	280	459	467	583	98.4	78.8
Totals . . .	168,305	175,049	190,827	350,644	364,692	397,561	96.1	88.2
Canada . . . . .	2) 45,000	30,596	43,103	2) 94,000	63,742	89,798	147.1	104.5
United States . . . . .	152,160	56,640	119,079	317,000	118,000	248,081	268.6	127.8
Totals . . .	197,160	87,236	162,182	411,000	181,742	337,879	226.2	121.7
Chosen . . . . .	25,398	23,097	20,455	52,913	48,120	42,616	110.0	124.2
Japan . . . . .	37,138	34,324	36,771	77,371	71,509	76,607	108.2	101.0
Totals . . .	62,536	57,421	57,226	130,284	119,629	119,223	108.9	109.3
Algeria . . . . .	14,024	21,482	16,569	29,218	44,755	34,519	65.3	84.6
Egypt . . . . .	4,915	4,336	5,200	10,241	9,033	10,834	113.4	94.5
French Morocco . . . . .	12,782	33,516	23,174	26,631	69,826	48,279	38.1	55.2
Tripolitania . . . . .	1,213	661	650	2,526	1,378	1,355	183.3	186.4
Tunisia . . . . .	8,819	3,307	4,630	18,372	6,890	9,645	266.7	190.5
Totals . . .	41,753	63,302	50,223	86,988	131,882	104,632	66.0	83.1
GRAND TOTALS . . .	469,754	383,008	460,458	978,916	797,945	959,295	122.7	102.1
OATS								
Germany . . . . .	121,149	120,204	144,830	378,587	375,634	452,591	100.8	83.6
Bulgaria . . . . .	2,873	1,610	2,559	8,977	5,032	7,997	178.4	112.2
Spain . . . . .	10,991	16,630	15,083	34,348	51,969	47,133	66.1	72.9
Greece . . . . .	2,822	2,352	2,012	8,818	7,350	6,289	120.0	140.2
Hungary . . . . .	5,126	5,718	6,787	16,018	17,869	21,210	89.6	75.5
Netherlands . . . . .	5,697	6,337	6,728	17,802	19,803	21,024	89.9	84.7
Romania . . . . .	14,881	12,418	20,438	46,504	38,806	63,867	119.8	72.8
Switzerland . . . . .	463	449	806	1,447	1,404	2,517	103.0	57.5
Totals . . .	164,002	165,718	199,243	512,501	517,867	622,628	99.0	82.3
Canada . . . . .	2) 151,000	109,181	117,865	2) 471,000	341,190	368,327	138.2	128.1
United States . . . . .	405,120	168,320	352,048	1,266,000	526,000	1,100,151	240.7	115.1
Totals . . .	556,120	277,501	469,913	1,737,000	867,190	1,468,478	200.4	118.3
Algeria . . . . .	2,045	3,804	3,710	6,390	11,889	11,594	53.7	55.1
French Morocco . . . . .	439	606	677	1,371	1,894	2,115	72.4	64.8
Totals . . .	2,484	4,410	4,387	7,761	13,738	13,709	56.3	56.6
GRAND TOTALS . . .	722,606	447,629	673,543	2,257,262	1,398,840	2,104,815	161.4	107.3

w) Winter crop. — s) Spring crop — i) Including spelt and meslin. — 2) Conjectural estimate based on probable area and crop condition on 1 August. — 2) Estimated on 15 May.

and gave grounds for expecting a probable gross exportable surplus in Canada and a moderately large surplus in the United States. Given the changes that the spring wheat crops may yet undergo with the weather in July and August, it would be premature to make at present even a rough estimate of the probable surplus from the new crop in North America and it is better to await the official estimates of 1 August, which furnish a much surer and better founded basis than the forecasts of 1 July. As for the other cereals rye, barley and oats seem to be very abundant, not only in relation to last year's very poor crops in all three cases but in relation to the averages of 1929-33.

In the majority of Asiatic countries the production of wheat in 1935 would appear to be practically the same as that in the past year; from Turkey and China it is, however, reported that the drought has in some areas caused a sometimes appreciable diminution in unit-yields.

In North Africa the crop in the three countries of the French zone differs greatly from one to another but is on the whole very mediocre, due to the drought that prevailed in spring. For wheat the preliminary estimates indicate a total production for the three countries of 67.5 million bushels while last year 96.2 millions were harvested and on the average 71.1 millions in 1929-33. Of the three countries Tunisia has had a much better crop than expected, considerably exceeding the average and that of last year, while in Algeria production is scarcely average and in Morocco, where drought has caused very serious damage, it is extremely poor. For barley production in these three countries appears still lower than that for wheat, reaching a total of only 74 million bushels, a decrease of 47 on 1934 and 18 million on the average. Morocco has had very low unit-yields and Algeria only mediocre ones. Tunisia is exceptional, having had an abundant crop, following on the extension of area and more favourable weather. The total Egyptian crop of wheat and barley is practically average.

Sowings in the southern hemisphere were greatly hindered by drought in large and important areas both in Australia and Argentina. In addition to a poor start of the crops and to lateness of sowings, which implies additional risks it would appear necessary to reckon on a fairly appreciable decrease in the areas under wheat.

G. CAPONE.

*Germany:* Hot weather predominated in June. The heavy rains and reserves of soil moisture, however, considerably favoured the growth of the crops.

According to information based on official reports crop condition was appreciably better than in the previous month.

According to the most recent estimate the area cultivated to meslin is this year about 1,256,000 acres against 970,000 in 1934 and 902,000 on the average of the five years ending 1933; percentages 129.4 and 139.1.

Area cultivated to spelt this year about 185,000 acres against 257,000 in 1934 and 288,000 on the average of the five years ending 1933; percentages 72.0 and 64.2. The corresponding production is estimated at about 2,825,000 centals against 3,163,000 and 3,252,000; percentages 89.3 and 86.9.

Crop condition of spelt on 1 July was 2.3 against 2.4 on 1 June 1935 and 2.8 on 1 July 1934.

*Austria:* The rather rainy beginning of the month was followed by clear days and increasing temperatures up to 11 June. At that date and particularly after the middle of the month more or less heavy rains, followed by low temperatures, were recorded. At the beginning of the last week of June temperatures rose rapidly.

On the basis of crop condition on 1 July production of winter cereals was expected to be certainly above that in the previous year.

Spring cereals had in general a good appearance but began to suffer from the drought in the last week of June.

*Belgium:* The first three weeks of June had rainy and rather cold weather. There were violent storms and hail, causing serious losses in several areas. With the coming of summer there began a period of high temperatures lasting until the end of the month.

The rainy weather caused a general delay in seasonal operations and in the growth of most crops. Winter-barley and especially hybrid wheats were attacked by smut. Oats have a good appearance; several fields of rye have been laid.

*Bulgaria:* Temperature in June was above average. The first half of the month was generally hot and dry, rains being insignificant. Precipitation in the latter half of June was, however, abundant.

*Estonia:* Weather during the second half of May and the first half of June was generally unfavourable for crop growing. Temperature remained low and the amount of precipitation was insufficient. On account of these conditions crops could not develop according to expectations.

Young winter crops did not improve noticeably as compared with the estimates of the previous month. Young summer crops developed very slowly, since the unfavourable weather prevented their regular growth.

*Irish Free State:* The weather during June was wet, with temperature about average and sunshine less than normal.

All crops were benefited by the rains and were very promising. Given a reasonable amount of sunshine an early harvest is expected.

The cereal harvest promises to be at least as good as last year's.

*France:* Temperatures, which were maintained until mid-June below normal, with a delay of about two weeks in the development of the crops, recovered briskly in the second half of the month under the influence of the south wind and remained high in the first half of July. The sky was often covered and showers frequently fell almost everywhere. The distribution of the rains was generally irregular and in some places rains were even excessive.

In general the high temperatures encouraged ripening of wheat but in some localities caused premature ripening, which will diminish the yield. Weather was in general not favourable to earing and flowering; there are numerous complaints regarding the spread of take-all. The appearance of the wheat crop in mid-July remains very irregular not only according to region but from place to place and often even from field to field. Crop prospects have worsened slightly since 15 June and it is now certain that despite the growth in area under wheat the crop will show an appreciable deficit with respect to last year, even if conditions are good in the latter period of growth and harvesting. The irregularity in crop condition makes more difficult

## Area and Crop Condition.

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1935	1934	Average 1929 to 1933	% 1935										
				1934 = 100	Aver. = 100	I-VII-1935			I-VI-1935			I-VII-1934		
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Thousand acres														
WHEAT														
Germany . . . (w)	4,640	4,669	4,435	99.4	104.6	2.5	—	—	2.7	—	—	—	—	3.2
(s)	505	762	580	66.2	87.1	2.7	—	—	2.7	—	—	—	—	3.4
*Austria . . . (w)	...	548	502	...	...	1.9	—	—	2.0	—	—	2.4	—	—
(s)	...	21	22	...	...	2.2	—	—	2.2	—	—	2.3	—	—
Belgium . . . (w)	381	379	396	100.2	96.0	—	—	—	—	—	—	—	—	—
Bulgaria . . .	3,037	3,057	2,988	99.3	101.6	—	—	—	—	—	—	—	—	—
Spain . . . . .	11,063	11,039	11,084	100.2	99.8	—	—	—	—	—	—	—	—	—
*Estonia . . .	...	161	111	...	...	—	—	u) 82	—	—	w) 80	u) 115	—	—
Finland . . . (w)	56	45	31	109.8	181.4	—	—	—	—	—	—	—	—	—
(s)	13,091	12,863	12,612	101.8	103.8	—	—	—	—	—	—	—	—	—
France 1) . . . (s)	143	339	370	42.3	38.8	—	—	—	—	—	—	—	—	—
Scotland . . .	105	98	57	107.6	184.1	—	100	—	—	100	—	102	—	—
Greece . . . . .	2,020	1,983	1,479	101.9	136.6	—	—	—	—	—	—	—	—	—
Hungary . . . .	4,005	3,799	3,925	105.4	102.0	—	—	—	—	—	—	—	—	—
(w)	12,166	12,031	12,079	101.1	100.7	—	—	—	—	—	—	—	—	—
Italy . . . . . (s)	262 2)	349	153	—	172.0	—	—	—	—	—	—	—	—	—
Latvia . . . . . (w)	207	210	146	99.0	142.3	—	—	—	—	—	—	—	—	—
Lithuania . . .	521	514	500	101.4	104.2	117	—	—	100	—	—	117	—	—
Luxembourg . . .	40	40	27	100.0	149.4	1.9	—	—	2.1	—	—	2.5	—	—
*Norway . . . .	...	46	29	...	...	103	—	—	—	—	—	—	—	99
Netherlands . . (w)	316	306	180	103.3	175.4	—	—	—	—	—	—	—	—	—
(s)	60	60	36	100.3	168.1	—	s) 100	—	—	—	s) 99	—	—	—
Poland . . . . . (w)	3,794	3,774 4)	3,763	100.5	100.8	3.5	—	—	3.2	—	—	3.3	—	—
(s)	607	609 4)	345	99.4	175.7	3.5	—	—	3.2	—	—	3.3	—	—
Romania . . . .	8,518	7,610	7,535	111.9	113.1	—	f)	—	—	—	—	f)	—	—
*Sweden . . . . (u)	...	603	542	...	...	—	3) 3.0	—	—	—	2.7	3.4	—	—
Switzerland . . (s)	211	211	180	100.0	117.3	110	—	—	—	100	—	—	—	96
Czechoslovakia . (w) 6)	2,172	2,099	1,995	103.5	108.9	2.2	—	—	2.3	—	—	—	—	3.3
(s)	215	230	91	93.6	236.0	2.8	—	—	2.4	—	—	—	—	3.7
Yugoslavia . . . (u)	5,354	5,081	5,184	105.4	103.3	—	—	—	—	—	—	—	—	—
Total Europe . .	73,489	72,157	70,171	101.9	104.7	—	—	—	—	—	—	—	—	—
U. S. S. R. . . . (w)	31,836	29,893	24,987	106.5	127.4	—	—	—	—	—	—	—	—	—
Canada . . . . . (w) 7)	537 4)	426 4)	658	126.2	81.6	—	—	96	—	—	88	—	—	82
(s) 8)	22,808 4)	23,559 4)	25,278	96.8	90.2	—	—	97	—	—	97	—	—	82
United States . . (w) 7)	31,389 4)	32,968 4)	37,780	95.2	83.1	73.0	—	—	74.2	—	—	—	—	57.2
(s) 7)	20,837 4)	9,281 4)	19,841	224.5	105.0	85.1	—	—	85.2	—	—	—	—	38.4
Total America . .	75,571	66,234	83,557	114.1	90.4	—	—	—	—	—	—	—	—	—
India 9) . . . . .	34,478	35,799	32,614	96.3	105.7	—	f)	—	—	—	—	—	—	—
Japan . . . . .	1,626	1,589	1,280	102.3	127.0	—	—	—	f)	—	—	—	—	—
Syria and Lebanon	1,288	1,175	1,170	109.7	110.1	...	...	...	—	100	—	—	—	—
*Turkey . . . . . (u) 5)	4,482	6,871	7,385	—	—	—	—	—	—	—	—	—	—	—
Total Asia . . . .	37,392	38,563	35,064	97.0	106.6	—	—	—	—	—	—	—	—	—
Algeria . . . . .	3,993	4,068	3,839	98.1	104.0	—	—	—	—	100	—	—	—	—
Cyrenaica . . . .	52	22	20	233.3	257.4	—	—	—	—	—	—	—	—	—
Egypt . . . . .	1,463	1,442	1,595	101.5	91.8	107	—	—	107	—	—	—	—	90
French Morocco .	3,210	3,018	2,885	106.4	111.3	—	—	—	—	—	—	—	—	—
Tripolitania . . .	30	25	22	120.0	133.3	—	—	—	—	—	—	—	—	—
Tunisia . . . . .	1,829	1,903	1,952	96.1	93.7	—	—	—	—	—	—	—	—	—
Total Africa . . .	10,577	10,478	10,313	101.0	102.6	—	—	—	—	—	—	—	—	—
GRAND TOTAL . . (m)	197,029	187,432	199,105	105.1	99.0	—	—	—	—	—	—	—	—	—
(n)	228,865	217,325	224,092	105.3	102.1	—	—	—	—	—	—	—	—	—

\* St. 7 Incl.

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COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1935	1934	Average 1929 to 1933	% 1935										
				1934 = 100	Aver = 100	I-VII-1935			I-VI-1935			I-VII-1934		
						Thousand acres		a)	b)	c)	a)	b)	c)	a)
Canada . . . . .	8) 3,798	4) 3,612	4) 4,538	105.1	83.7	—	—	98	—	—	95	—	—	84
United States . . . . .	7) 12,957	4) 7,095	4) 12,194	182.6	106.3	87.6	—	—	84.3	—	—	—	—	45.9
Total America . . . . .	16,755	10,707	16,732	155.8	100.1	—	—	—	—	—	—	—	—	—
Japan . . . . .	1,919	1,860	2,088	103.2	91.9	—	—	f)	—	f)	—	—	—	—
Syria and Lebanon . . . . .	713	611	810	116.7	88.0	—	—	—	—	100	—	—	—	—
*Turkey . . . . .	w) 2,190	3,294	3,417	—	—	—	—	—	—	—	—	—	—	—
Total Asia . . . . .	2,632	2,471	2,898	106.6	90.9	—	—	—	—	—	—	—	—	—
Algeria . . . . .	2,976	3,131	3,431	95.0	86.7	—	—	—	—	100	—	—	—	—
Cyrenaica . . . . .	151	110	84	137.4	178.8	—	—	—	—	—	—	—	—	—
Egypt . . . . .	281	284	342	98.7	82.1	—	—	—	114	—	—	—	—	—
French Morocco . . . . .	3,988	3,844	3,344	103.8	119.3	—	—	—	—	—	—	—	—	—
Tripolitania . . . . .	272	247	282	110.0	96.5	—	—	—	—	—	—	—	—	—
Tunisia . . . . .	1,532	988	1,221	155.0	125.4	—	—	—	—	—	—	—	—	—
Total Africa . . . . .	9,200	8,604	8,704	107.0	105.7	—	—	—	—	—	—	—	—	—
GRAND TOTAL . . . . .	51,066	44,813	51,807	114.0	98.6	—	—	—	—	—	—	—	—	—
OATS														
Germany . . . . .	6,945	7,773	8,317	89.3	83.5	2.8	—	—	2.9	—	—	—	—	3.4
*Austria . . . . .	743	743	759	—	—	2.4	—	—	2.3	—	—	2.6	—	—
Bulgaria . . . . .	264	312	328	84.5	80.4	—	—	—	—	—	—	—	—	—
Spain . . . . .	1,619	1,877	1,917	86.3	84.5	—	—	—	—	—	—	—	—	—
France 1) . . . . .	2,169	1,983	2,117	109.4	102.5	—	—	—	—	—	—	—	—	—
Scotland . . . . .	6,024	6,091	6,413	98.9	93.9	—	—	—	—	—	—	—	—	—
Greece . . . . .	830	816	862	101.7	96.3	—	100	—	—	95	—	100	—	—
Hungary . . . . .	358	353	322	101.5	111.2	—	—	—	—	—	—	—	—	—
Lithuania . . . . .	553	552	619	100.1	89.3	—	—	—	—	—	—	—	—	—
Luxemburg . . . . .	824	812	891	101.5	92.5	117	—	—	110	—	—	100	—	—
*Norway . . . . .	67	67	72	100.0	92.7	2.0	—	—	2.5	—	—	2.5	—	—
Netherlands . . . . .	320	323	364	99.1	87.7	—	100	—	—	—	—	—	—	97
Poland . . . . .	5,488	5,466	5,424	100.4	101.2	3.3	—	—	3.1	—	3) 96	3.1	—	—
Romania . . . . .	1,947	2,044	2,369	95.3	82.2	—	—	—	—	—	—	—	—	—
Switzerland . . . . .	25	25	45	99.8	54.9	102	—	—	—	95	—	—	—	96
Czechoslovakia . . . . .	1,958	1,976	2,050	99.3	95.5	2.9	—	—	2.7	—	—	—	—	3.5
Yugoslavia . . . . .	66	84	73	78.2	90.4	—	—	—	—	—	—	—	—	—
Total Europe . . . . .	29,457	30,554	32,183	96.4	91.5	—	—	—	—	—	—	—	—	—
Canada . . . . .	8) 14,317	4) 13,731	4) 13,051	104.3	109.7	—	—	96	—	—	94	—	—	87
United States . . . . .	7) 39,530	4) 30,172	4) 39,201	131.0	100.8	87.5	—	—	84.4	—	—	—	—	40.0
Syria and Lebanon . . . . .	30	32	29	93.7	104.7	—	—	—	—	100	—	—	—	—
*Turkey . . . . .	w) 408	419	387	—	—	—	—	—	—	—	—	—	—	—
Algeria . . . . .	435	450	554	96.7	78.6	—	—	—	—	—	80	—	—	—
French Morocco . . . . .	72	66	83	109.2	86.6	—	—	—	—	—	—	—	—	—
Tunisia . . . . .	74	49	86	150.0	85.9	—	—	—	—	—	—	—	—	—
Total Africa . . . . .	581	565	723	102.6	80.5	—	—	—	—	—	—	—	—	—
GRAND TOTAL . . . . .	83,915	75,054	85,187	111.8	98.5	—	—	—	—	—	—	—	—	—

(†) See explanation according to the various systems, page 497. — \*) Countries not included in the totals. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — h) Very bad. — m) Not including U. S. S. R. — n) Including U. S. S. R. — w) Winter crop. — s) Spring crop. — z) Estimates of 1 May. — 2) Almost half of this area represents resowings of winter wheat. — 3) Middle of the month. — 4) Area harvested. — 5) Including spelt and meslin. — 6) Including spelt. — 7) Area expected to be harvested. — 8) Area to be planted according to farmers' intentions on 1 May 1935. — 9) Fourth estimate. — 10) Average 1930 to 1933. — 11) Year 1933.



than ever an estimate of the probable production of wheat. The majority of opinions place the crop rather in the vicinity of 165-275 million bushels than in that of 175-295 million, quality would appear mediocre. For the other cereals and especially for oats an abundant crop is expected.

*Great Britain and Northern Ireland:* In England and Wales an abnormally cold and dry May was followed by a spell of unsettled weather, which persisted until the third week of June. Rain fell on practically every day during this period and in some districts high winds and a continuance of night frosts adversely affected crops. Temperatures remained low until the last week of the month, when the unsettled conditions gave way to a much needed warm and sunny spell.

It is doubtful whether the late frosts in May occasioned any appreciable permanent damage to the cereal crops. Growth was generally checked, but a rapid recovery took place during June.

Somewhat similar weather conditions were experienced in Scotland where, with the abundant rain and higher temperatures of the latter part of the month, the outlook underwent a complete change and prospects were improved. The cereal crops made rapid recovery from the effects of the drought and at the end of the month, although slightly backward in growth in a few areas, their appearance was up to the average.

The wheat crop in England and Wales made a decided advance during June. On present appearances, however, it is doubtful whether a full average yield will be reached. Barley made an excellent recovery in most districts, early forecasts indicate that the yield may be a little below average. Winter oats are a healthy and promising crop and spring oats have improved considerably although still rather uneven and short in the straw, on present appearances it is anticipated that the yield of oats generally may be a little under average.

In Scotland all three cereal crops are average in condition. In several eastern districts charlock appeared to be more prevalent than usual.

*Greece* According to the most recent estimate production of meslin this year is about 772,000 centals (1,300,000 bushel) against 685,000 (1,180,000) in 1934 and 656,000 (1,131,000) on the average of the five years ending 1933, percentages 112.7 and 117.7.

*Hungary:* In the fortnight from 17 June to 2 July the weather was characterised by exceptionally high temperatures and great drought.

At the beginning of July the cereal harvest was in progress throughout the country. The high temperatures and drought accelerated ripening and caused blasting, particularly in late-sown crops. The straw of all kinds of cereals was of average height.

*Italy.* In the second half of June harvesting of wheat was in progress. Forecasts are of a crop larger than that of last year in the north and centre, good or fairly good in the south and in Sardinia and poor in Sicily.

*Latvia:* Temperatures in June remained above normal. Precipitation, accompanied often by storms, varied greatly on different occasions, sometimes exceeding twice the normal and at other times appreciably below the normal. In the second half of the month the lack of rain considerably hindered crops.

According to 44.3 % of the agricultural correspondents condition of winter wheat was average, according to 29.2 % above average and according to 26.5 % below average. Corresponding figures for winter rye were 50.2 %, 36.3 %, 13.5 %, for barley 51.7 %, 37.0 %, 11.3 %.

*Lithuania:* At the beginning of June the weather was rather unfavourable. The amount of moisture was quite satisfactory but the cold weather and winds checked the normal progress of vegetation and the hoar frosts caused some slight local damage. Toward 10 June the weather became warmer and the end of the month was characterised by great heat. The high temperature and the opportune rains were favourable and crop condition improved considerably in the latter half of June. Work in the fields was carried out in good conditions but at the end of the month the excessive dryness of the soil caused difficulty.

*Luxembourg:* Crop condition is good and promises satisfactory production.

The area under meslin this year equals that of last year and remains 33.1 % below the five-year average.

*Norway:* Crop condition of meslin on 1 July, expressed according to the system of the Institute, was 105 against 98 on the same date last year.

*Netherlands:* Cereals on the whole were in good condition in the middle of June. As the prospects for winter wheat and barley at the beginning of the spring were favourable, less nitrate fertilizers were used but, owing to the delay in vegetation caused by the cold, more fertilizer had to be applied. In Groningen and Zeeland some cases of stem rot were notified. In North Holland the condition of winter wheat varied from good to very good.

The condition of other cereals was satisfactory. The rains of the beginning of June caused some lodging in the rye crop.

*Poland:* Condition of winter and spring cereals was considerably ameliorated in the period from 15 May to 15 June, thanks to the hot weather and the adequacy of soil moisture, as will be seen from the following table of crop condition according to the system of the country:

Crops	15 June	15 May
Winter wheat . . . . .	3.4	2.8
Spring wheat . . . . .	3.3	2.9
Winter barley . . . . .	3.5	2.8
Spring barley . . . . .	3.1	2.7
Winter barley . . . . .	3.0	2.6
Spring barley . . . . .	3.3	2.8
Oats . . . . .	3.2	2.8

Flowering occurred in generally favourable conditions. Storms and hail caused only local damage. In consequence laying of wheat was reported in only 67 of crop correspondent's replies and in the majority of cases was insignificant.

On the other hand weed infestation is reported.

During the second half of June and the first days of July the weather was very hot and generally dry. There was precipitation of a stormy type almost everywhere; however, in the west and in Warszawa and Łódź cereals, especially those of spring, were, already beginning to suffer from lack of soil moisture.

*Portugal:* Weather has on the whole been unfavourable, particularly for barley, oats and rye, of which very poor crops are reported.

*Romania:* In the latter half of June abundant rains fell in all *départements*. The areas that suffered from drought in the first half of June received large amounts of

moisture. At the beginning of July some *départements* of Basarabia, particularly Ti-gghina, and of Transylvania had still need of rain.

The losses caused to cereals by hail in the different *départements*, though serious, are not such as appreciably to reduce the total outturn of the country.

Harvesting of wheat and barley was about to begin save in the north.

Conditions of oats greatly improved thanks to the rains.

Toward mid-June harvesting of winter barley began in Muntenia and Oltenia; that of the spring variety, which represents about 95 % of the total, began toward 22 June, except in the mountain districts, where it was expected to begin early in July.

Toward 22 June harvesting of wheat also began in some parts of the Danube valley and in the Banat. The frequent rains at the end of June somewhat hindered operations.

*Switzerland*: Weather conditions in June were particularly favourable to the growth of crops. Crop condition of cereals improved substantially. The winter cereals, in particular, promise a good to very good crop. In the case of winter wheat and spelt, 90 % of a very large crop is expected. The formation of ears is satisfactory and flowering occurred in favourable conditions. In some places, the crop leaves a little to be desired as a result of damage by bad weather. Straw also is fairly long and promises a good crop. The spring cereal sowings have not yet made up for the delay in their growth which was caused by the bad weather of the spring. Their appearance is slightly inferior to that of the autumn cereals.

According to the most recent estimate area cultivated to spelt this year is about 29,700 acres against 29,300 in 1934 and 31,300 on the average of the five years ending 1933; percentages 101.3 and 94.7. The corresponding production is estimated at about 661,400 centals against 603,300 and 617,100; percentages 109.6 and 107.2.

The corresponding figures for meslin areas follows: Area 17,300 acres, 17,500 acres and 13,500 acres; percentages: 99.0 and 128.3. Production 397,000 centals (684,000 bushels), 358,000 centals (617,000 bushels) and 265,000 centals (457,000 bushels); percentages: 110.9 and 149.8. Crop condition of spelt on 1 July 1935 was 112, against 101 on 1 June 1935 and 99 on 1 July 1934 and that of meslin was respectively 110, 102 and 98.

*Czechoslovakia*: In the first decade of June it was warm but in the second decade temperatures fell fairly appreciably with a cold wave, while in the third decade they again showed a considerable rise so that toward the end of the month the heat wave reached its culmination. On the plains temperature exceeded 37°C.

There were torrential rains, especially at the beginning of June and in the second decade. Condition of winter cereals is so far generally good. Rye flowered well and thanks to the warm dry weather was rapidly approaching maturity. In the lower districts of the south preparations were already being made for the harvest. In some areas wheat had been laid and in others there was hail damage; the appearance of many insects was reported. So far the condition of winter cereals was generally good but it was feared that the prolonged warm and dry weather would cause losses.

Spring cereals have suffered greatly from the heat and drought.

*Yugoslavia*: In June the weather was favourable. The hot dry weather in the first fortnight checked the spread of rust, which in many areas had already infested the crops and especially wheat. The rains in the second half of June assisted normal ripening.

So far there is no official estimate but on the basis of the information available from most parts of the country good unit-yields may be expected.

*U. S. S. R.*: In the first half of June it was very hot; there was precipitation of a stormy character over a great area. At the beginning of July a cold wave brought an appreciable fall of temperature. The weather was changeable and in the first half of the month the sky over the larger part of the territory was more or less overcast and there were rains almost everywhere but principally in the centre and northeast of the European territory and in Liberia.

On 10 July harvesting, which is for the time being proceeding in the South (Northern Caucasus, Crimea, Ukraina), had been completed on 16,500,000 acres or 8.6 % of the area.

The harvest this year has been distinguished by some peculiarities in the weather and in the ripening of cereals. As last year, ripening of cereals has been 10-20 days in advance of normal throughout the southern regions of the Union. This rapid development will probably also be experienced in the central areas, where winter rye was already in the milky stage at the beginning of July and spring cereals were earing and flowering.

So far official information on crop condition at the beginning of July and on the production estimate is lacking; however, in the declarations lately made by members of the Government the preceding forecasts of a good crop in almost all regions are confirmed. From information published in the Soviet press and based on the first threshing results, good yields appear to have been obtained in Northern Caucasus, Ukraina and Crimea. Prospects are good in Siberia and the Ural Region also.

The short interval between ripening of winter cereals and that of spring cereals may be a critical period for normal development of the crop and already measures are being taken to meet this critical period. In the first days of the harvest weather was favourable. In Crimea from 25 June to 7 July there were one or two rainy days in Odessa and Dnepropetrovsk and 2-3 days in Northern Caucasus.

*Argentina* (Telegram of 22 July): Owing to lack of rains sowings of wheat are late. The area sown is expected to be less than last year.

*Canada* (Telegram of 4 July): Moisture conditions throughout Canada were generally favourable to growing crops. Dry areas in the Prairie Provinces were practically confined to districts in Southern Alberta and parts of Southwestern and West Central Saskatchewan. Excessive moisture supplies were received in Northern Alberta. Crops were late throughout Canada and except where moisture was limited warm weather was needed to promote growth. The most variable conditions then existed in Alberta where drought is an important factor in the south.

(Telegram of 10 July) The general crop situation in the Prairie Provinces did not change to any extent during the preceding week. The general outlook remained satisfactory with reservations in respect to drought in limited areas and excessive moisture and lateness of crops in other districts. Generous rains were again received over wide areas in the Prairie Provinces but the districts in Southwestern and West Central Saskatchewan and Southern Alberta where drought had been menacing crops did not share in the rainfall of the week. Red stem rust has appeared in the Red River valley in Manitoba. Crops made good progress in Saskatchewan except in areas where moisture supplies were scanty. Further damage was sustained in the drought-affected areas of Southern Alberta but elsewhere crops made good progress.

(Telegram of 17 July): In Manitoba the development of the rust menace dominates the crop situation. Drought continues to take a toll from crops in parts of Southwestern, West Central and Northwestern Saskatchewan, but apart from these areas, conditions continue favourable. Severe drought damage is taking place in the southern districts of Alberta. The high temperatures of the past week have revealed

a lack of subsoil moisture in parts of Central Alberta. Recent weather in Northern Alberta, however, has been favourable to crops

(Telegram of 24 July): The past week has also been characterized by general high temperatures but scattered rains and some destructive hailstorms served to increase variation in western crop prospects. The hot weather reduced the promise of the crops in areas of limited moisture in South-Central Saskatchewan, Southern Alberta and along the boundaries of the two provinces. Although some relief subsequently came to Southern Alberta it was too late to be very helpful and the accompanying hail offset most of the benefit. Growth continues to be satisfactory over most of Saskatchewan and Alberta, where hot weather is needed to hasten maturity. In Manitoba conditions also remain very favourable for growth but serious stem rust infection, covering most of the common wheats, considerably reduces prospects. The weather of the past week favoured the development of the rust and its extension westward and northward continues. Approximately 4 ½ million acres of wheat land are already affected. Grasshoppers are causing limited damage in Saskatchewan only.

*United States* (Telegram of 4 July): During the preceding week light general rains were received over the central and eastern States but conditions were too dry in the south-east and the west, particularly in North Dakota and Montana. Small grains are generally satisfactory and the wheat harvest is moving northward into Ohio.

(Telegram of 11 July): Weather during the past week was generally favourable for agriculture. Fine warm weather in the Great Plains and eastwards favoured field work and the growth of crops but the lack of rain in the west of the Great Plains and in the Southwestern States is serious. Rains relieved the drought in the South-eastern States and in the Northern Great Plains.

(Telegram of 25 July): Temperatures have been normal in the South and above normal in the North. Moisture has been generally ample from the Great Plains eastward but too dry in the Southwest and the Rocky Mountain States.

Harvesting of winter wheat is practically over. Rust is reported in spring wheat

*Japan*: Favoured by the weather, condition of wheat and of spring barley on 1 July was normal.

*Palestine*: Harvesting was energetically pursued in June but at the end of the month appreciable areas of wheat, especially in the Southern District, had not been reaped. There is a decided increase in the use of reapers. Threshing was in full progress. The grain of late wheats in the greater part of the South is of very poor quality, being badly shrivelled. In the Northern District, however, little damage was done by the khamsin of the latter part of April and early May.

Barley is generally good.

The results of the winter crops as a whole, despite the inclement weather, were expected to be very little below normal in the Southern district and somewhat above normal in the North.

*Syria and Lebanon*: In the State of Syria cereals wintered well. In May there were no rains and temperature was rather high but in general the weather was normal and growth has been very satisfactory. In the State of Latakia the mists at the beginning of May favoured the spread of rust, which caused 30 % damage to the wheat crops on the plains. After 20 May the hot, dry and sunny weather checked the rust. In Jebel ed Druz temperature varied brusquely with a few slight showers and strong winds for some days. Winter crops passed the month well. Harvesting of barley was already far advanced. In the north of Jebel ed Druz losses of a certain importance were caused by blasting.

*Turkey:* According to the most recent estimate the area cultivated to spelt this year about 150,000 acres against 171,000 in 1934 and 221,000 on the average of the five years ending 1933; percentages 87.7 and 67.7.

*Algeria:* During June it was warm and dry, except for a few storms, in Algiers and Oran. In Constantine weather conditions were satisfactory. Harvesting has begun in Algiers, Oran and Constantine. Harvesting of barley and soft wheat was practically finished in Algiers and that of oats and hard wheat is continuing.

*Cyrenaica:* In June temperatures were normal but there was no precipitation. Harvesting, favoured by the fine weather, was in progress and satisfactory yields were expected.

*Egypt:* Harvesting of wheat ended in June but threshing continued; the first results gave a good unit-yield in most areas.

*French Morocco:* June was dry and hot with wind in the north and west sectors. Moisture is decreasing appreciably, particularly in the south, owing to the almost complete disappearance of the snow in the Atlas mountains, springs and the water table have still a sufficient flow, but in some areas the level of the tanks has fallen rapidly.

Harvesting of winter cereals, already very advanced amongst both natives and Europeans, shows a notable advance on the usual date. Threshings confirm the mediocrity of unit-yields and particularly their inequality according to area and situation. On the whole the general production of hard and soft wheat would appear to be half that of 1934, a decrease of 30 % to 40 % on an average crop. The deficit in barley would appear more distinct and to be probably 50 % with respect to an average year.

Native and European cultivators are in a mediocre situation owing to the insufficiency of the crop this year; prices of agricultural products are, however, stationary owing to the large quantities of grain from the preceding harvest still available on the market or on holdings.

*Tunisia:* In June the weather was characterized by very localized storm rains of small significance and temperatures normal or above normal. The scirocco blew from time to time, especially at the end of the month.

In a general way the weather allowed good ripening and was relatively favourable to harvesting.

*Union of South Africa:* Splendid, soaking rains fell during May practically throughout the Cape Province, Natal and Orange Free State. In a number of districts the lands were too wet for ploughing and the sowing of winter crops was delayed. In most districts, however, ploughing and sowing took place on a large scale and reports indicated that a record area was being planted. Prospects for the winter crops generally were very promising.

In the Eastern Border districts, along the South Coast of the Cape Province and in parts of Natal, the rainfall was exceptionally heavy, up to 400 mm. (16 inches) being registered along the coast. In some of these districts flood conditions prevailed for several days and considerable damage was done by the washing away of low-lying lands and encroachment by the waters of flooded rivers.

*Australia* (Telegram of 16 July): Rains are wanted everywhere, particularly in Western Australia, where precipitation has been scanty and the dry conditions make the need for more moisture urgent. In South Australia conditions have been favourable

for sowings, which are almost ended. Crop condition in Victoria is fairly satisfactory but in New South Wales germination has been irregular.

According to the most recent estimate area cultivated to wheat in 1934-35 was 12,494,000 acres against 14,901,000 in 1933-34 and 15,698,000 on the average of the five years ending 1932-33; percentages 83.8 and 79.6. The corresponding production is estimated at about 80,658,000 centals (134,431,000 bushels) against 106,403,000 (177,338,000) and 108,564,000 (180,940,000); percentages 75.8 and 74.3.

## MAIZE

*Austria:* At the beginning of July maize developed fairly well but was still backward. Hoeing had been only partially terminated.

*Bulgaria.* The average temperature of the month was higher than usual.

During the first half of June it was generally warm and weather was dry with an insignificant amount of rainfall. During the second half of the month, however, good rains fell and benefited the crop.

Crop condition of maize on 1 July was good.

*Hungary.* Up to the beginning of July maize resisted drought. Leafage is green and the stems fairly robust. Here and there maize *pyralis* has caused damage. For further growth rain is desirable.

*Italy:* The effects of the persistent drought have been felt.

*Portugal.* Despite the delay in growth due partly to lack of sunshine, the crops have a good appearance.

*Romania.* The rains at the end of June greatly assisted growth which had begun to reflect the lack of moisture. At the beginning of July the crop still required rain in Basarabia. By that date second hoeings had been completed in the plains.

*Czechoslovakia.* In the eastern districts growth is in general satisfactory.

*Yugoslavia.* The rains in June in almost all parts of the country were very favourable to crops, which developed normally.

*U. S. S. R.:* In Northern Caucasus, one of the principal areas of production, sowings were very early this year, at the beginning of April. Owing to the snow that fell after sowings were made, a considerable part of the area had to be resown. Part of the sowings made a recovery but the remainder have developed only with difficulty.

*Argentina* (Telegram of 22 July) Harvesting was ended in good conditions but threshing is proceeding only slowly.

*United States:* In the week ending 27 June heavy rain in the central Corn Belt further delayed planting. In the following week warmer weather was beneficial but in some areas the land was still too wet for planting. In the week ending 11 July the weather was generally warm, in that ending 25 July it was reported that, while temperatures were normal and moisture generally ample, that the crop was still late.

According to the most recent estimate production of maize this year is about 1,145,200 thousand centals (2,045,000 thousand bushels) against 771,120 (1,377,000) in 1934 and 1,394,160 (2,489,573) on the average of the five years ending 1933, percentages 148.5 and 82.1.

*Palestine:* In the South maize was running to cob prematurely in June. In the North conditions were better but could not be expected to give a normal yield throughout. The poor germination of summer crops can be mainly attributed to the very short ploughing season. In many instances, on the low-lying plain, farmers had to wait until April before they could plough.

*Syria and Lebanon* Conditions were generally normal up to the end of May. Crop condition on 1 June in the States of Lebanon, Latakia and Jebel ed Druz was good. The area sown in the first two States was the same as last year (35,000 acres) while that in Jebel ed Druz is estimated at 8,700 acres against 15,600 in 1934.

### Maize.

COUNTRIES	AREA					CROP CONDITION (†)								
	1935	1934	Average 1920 to 1933	% 1935										
				1934 = 100	Aver = 100	I VII 1935			I VI 1935			I VII-1934		
						1,000 acres								
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria		160	151	...	...	25	—	—	27	—	—	29	—	—
Bulgaria	1,673	1,658	1,796	100.9	93.1	—	—	—	—	—	—	—	—	—
France 1)	780	846	808	92.9	97.3	—	—	—	65	—	—	—	—	—
Italy 2)	3,269	3,305	3,332	98.9	98.1	—	—	—	—	—	—	—	—	—
Romania	12,625	12,368	11,553	102.1	108.3	d)	—	—	—	—	—	—	—	—
Czechoslovakia 3)	231	222	—	104.3	—	—	—	—	—	—	—	—	—	—
Canada	158	161	142	98.1	111.0	—	—	95	—	—	—	—	—	76
United States	93,590	87,795	103,353	106.6	90.6	—	—	67.5	—	—	—	—	—	71.8
Algeria	15	16	23	93.2	66.0	—	100	—	120	—	—	—	—	—
French Morocco	996	986	771	101.0	129.1	—	—	—	—	—	—	—	—	—

(†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 497. —  
 a) Excellent — b) Average — 1) Areas sown to and crop condition on 1 June — 2) Main crop "maggengo".  
 — 3) Pure crop — 4) Area expected to be harvested — 5) Area harvested

*Algeria* June was warm in the *département* of Alger while in many districts there were scirocco winds and showers accompanied sometimes by hail.

*French Morocco* The maize crop benefited from the rains of last month. The natives, moreover, have resumed their sowings notwithstanding the lateness. A low production is, however, to be expected owing to the poor start in the vegetation of the unirrigated crop.

According to the most recent estimate production of maize this year is about 2,793,000 centals (4,988,000 bushels) against 5,425,000 (9,688,000) in 1934 and 3,021,000 (5,395,000) on the average of the five years ending 1933, percentages 51.5 and 92.4.

*Union of South Africa* Although frost did a fair amount of damage in May to late-planted maize on some farms in the North Eastern districts of the Orange Free State and Eastern Highveld areas of the Transvaal the major portion of the late-planted crop matured. Many farmers were busy reaping but a few farmers who had already threshed reported that the yields were disappointing, chiefly owing to drought and ravages of caterpillars.



## RICE.

*Italy:* According to the most recent estimate the area cultivated to rice this year is about 324,000 acres, as in 1934 and against 333,000 on the average of the five years ending 1933; percentages 100.0 and 97.3.

*United States:* According to the most recent estimate area cultivated to rice this year is about 789,000 acres against 781,000 in 1934 and 800,000 on the average of the five years ending 1933; percentages 101.0 and 88.7. The corresponding production is expected to amount to about 17,000,000 centals (37,800,000 bushels) against 17,233,000 (38,296,000) and 18,784,000 (41,742,000); percentages 98.7 and 90.6.

*British Guiana:* The weather in May continued to be dry, seriously affecting the rice crop.

*Chosen:* According to the most recent estimate the area cultivated to rice this year is about 4,127,000 acres against 4,195,000 in 1934 and 4,073,000 on the average of the five years ending 1933; percentages 98.4 and 101.3.

*Taiwan:* Condition of the first crop on 1 July was average.

*India:* Tillage for winter padi was begun in Bengal in mid-June under favourable conditions, rainfall being light to moderate save for heavy local falls. Moderate to heavy rains occurred in the first decade of July, helping preparations for and sowing of the crop.

In Bihar and Orissa there was light to moderate precipitation in most districts in June and the first week of July.

Standing padi was partly damaged by floods in parts of Bhagalpur. Preparation of the fields and sowing of winter padi went on in most districts. Dalua padi was harvested.

In the Central Provinces the weather in June and the first week of July was warm and cloudy with light to moderate showers; the monsoon was weak.

In the United Provinces there was rain everywhere in the latter part of June and first week of July.

In Bombay there were favourable rains in mid-July.

In Assam the weather was seasonable. There was some flood damage in the Garo hills in mid-June.

Sowing and transplanting proceeded in Madras, where rainfall was very heavy on the west coast and fairly good elsewhere.

*French Indo-China:* In Cochin-China preparation of the land for the new season was in active progress in the eastern provinces in May. Sowings had already been carried out in good conditions in Bien hoa and Thudaumot; they had also been completed in the provinces of the Centre. In the West preparations has also been made and in some districts sowings had begun. In the provinces with floating rice—Chaudoc and Longxuyên—sowings had already been made, as also in part of Rach gia. Nurseries were everywhere in good condition. Transplanted rice had renewed growth vigorously. Floating rice had sprouted in good conditions. In Cambodia the state of preparation varied according to the rains that had been received.

In Tonkin rice of the fifth month had almost everywhere been harvested; the crop could on the whole be considered average. Padis of the tenth month were everywhere being prepared. In some parts of the Delta the violent rains of April and May had

caused laying. In North and Central Annam also the crop of the fifth month had been brought in; yields were satisfactory, particularly in the North. Transplanting of rice of the eighth month had been completed in North Annam and was proceeding in Central and South Annam. Preparations for rice of the tenth month were in progress.

*British Malaya:* In May rainfall was average save in the inland districts, Province Wellesley and on the east coast of Johore, where it was below average and on the coasts of Malacca and western Johore, where it was above average.

Harvesting was completed in the Larut District of Perak, the coastal *mukims* of Pahang and parts of Lower Perak. It was begun in the Panchang Bedina district of Kuala Selangor, where fair yields were on the whole anticipated.

Preparation of the land and sowing of nurseries commenced in Kedah, Krian, parts of Malacca and some districts of Johore. Ploughing in the north and centre of Province Wellesley had been stopped through lack of water. In the river *mukims* of Western and Southern Pahang transplanting was in progress but was somewhat late because the first nurseries had been damaged by drought while the weed growth in the fields was heavy. In Kelantan the rain enabled the first ploughing for dry padi to be commenced much earlier than usual, but unless the weather became drier it was expected that it would be difficult to put the land into a fit state for planting.

*Egypt:* Weather in June favoured sowing, germination and growth of the *sefi* crop. Save in some small late areas in Beheira and Gharbiya sowing was ended. The crop is ten days ahead of last year. Weeding was being carried on. Germination and growth were satisfactory. Crop condition on 1 July 1935 was 101 against 100 at the same date last year.

## POTATOES

*Germany:* The moisture in the soil and the heavy rains in June appreciably improved crop condition, despite the generally hot weather.

*Austria:* Growth is backward. Early varieties were still in full bloom at the beginning of July. Drought in the second half of June somewhat affected the crops.

*Belgium:* In June work was hindered by intermittent rains. Growth has been very irregular. Lifting of early varieties began in mid-June.

*France:* Excessive humidity that persisted until the second decade of June and hindered work in the fields was prejudicial to growth and favoured spread of mildew. After 20 June the weather was more favourable and the crop made a fresh growth though an unusual infestation with *doryphora* threatened to compromise a good part of the crop.

*Great Britain and Northern Ireland:* The weather during June was generally very favourable to the crops and much of the set-back occasioned during the previous month was made good. The warm days at the end of June in particular provided a very welcome impetus to growth.

The damage to early potatoes by frost is less than was anticipated. Only a small proportion of the crop was totally destroyed and the bulk of the crop, although backward, has made a marked recovery. The yield is likely to be appreciably reduced in the areas affected and lifting has generally been delayed.

Main crop potatoes are strong and healthy and prospects were generally favourable.

The effects of the frosts in May are still apparent in the potato crop in Scotland, the growth of which is two or three weeks behind the normal. On the whole, the potato crop has made better progress in the western half of the country than in the east, but in several districts plants are stunted and tubers promise to be rather small.

### Potatoes.

COUNTRIES	AREA					CROP CONDITON (†)													
	1935	1934	Average 1929 to 1933	% 1935															
				1934 = 100	Aver = 100	I-VII-1935			I-VI 1935			I-VII-1934							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
1,000 acres																			
Germany. . . (s)	358	585	599	61.1	59.7	2.9	—	—	—	—	3.1	—	—	—	—	—	—	—	3.4
Austria . . . (t)	...	6,598	6,434	...	...	2.8	—	—	—	—	3.0	—	—	—	—	—	—	—	3.0
Bulgaria . . .	...	506	484	...	...	2.4	—	—	—	2.4	—	—	—	—	—	2.3	—	—	—
Scotland . . .	39	37	32	105.0	121.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France . . .	140	140	139	100.0	100.4	—	—	—	93	—	—	—	—	—	—	—	100	—	—
Italy . . .	3,472	3,449	3,505	100.7	99.1	—	—	—	63	—	—	—	—	—	—	—	—	—	—
Lithuania . . .	1,002	1,001	953	100.2	105.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luxembourg . . .	461	452	398	102.0	115.9	110	—	—	—	—	—	—	—	—	—	106	—	—	—
Norway . . .	41	41	41	100.1	98.9	2.7	—	—	—	2.5	—	—	—	—	—	2.5	—	—	—
Netherlands . . .	...	120	118	...	...	—	—	—	97	—	—	—	—	—	—	—	—	—	98
Poland . . .	345	356	414	97.0	83.4	—	—	—	93	—	—	—	93	—	—	—	—	—	1) 65
Romania . . .	...	6,825	6,662	...	...	3.4	—	—	—	—	—	—	—	—	—	2.8	3.3	—	—
Switzerland . . .	512	505	483	101.2	105.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Czechoslovakia (s)	114	112	115	101.1	98.6	—	—	—	98	—	—	—	91	101	—	—	—	—	—
Canada . . . (t)	101	97	87	103.7	115.8	2.7	—	—	—	2.7	—	—	—	—	—	2.9	—	—	—
Algeria . . .	1,760	1,753	1,701	100.4	103.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Canada . . .	525	569	551	92.2	95.2	—	—	—	96	—	—	—	—	—	—	—	—	—	96
Algeria . . . (t)	21	23	25	90.8	82.9	—	—	—	—	120	—	—	—	—	—	—	100	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals tables and note on page 497.  
— 1) At the middle of the preceding month. — s) Early potatoes. — t) Late potatoes.

**Hungary:** At the beginning of July early varieties appeared on the market. Flowering of the main crop was in progress. The tubers are only slightly developed.

**Lithuania:** The beginning of June was rather unfavourable. There was enough moisture but the low temperatures and hoar-frost, though not severe, injured the crop. Toward 10 June temperatures rose and at the end of the month were very high. There was sufficient moisture and crop condition appreciably improved.

**Luxembourg:** Like other hoed crops, potatoes are this year backward.

**Netherlands:** Crop condition of potatoes for human consumption was generally satisfactory in the middle of June except in sandy and clay soils. The crop for starch was better.

The Central Statistical Office has just published data on the production of potato starch, which is under the control of the Netherlands Central Office for Potato Starch and has been limited in recent years by the difficulties of export. Any very considerable restriction is, however, impossible owing to the special structure of the agricultural holdings in the ten colonies, the only region of production.

Year of production	Potatoes ground 1,000 centals	Starch produced 1,000 centals
1933-34 . . . . .	14,308	2,989
1932-33 . . . . .	18,453	3,406
1931-32 . . . . .	8,223	1,561
1930-31 . . . . .	16,645	3,188
1929-30 . . . . .	25,265	5,018
1928-29 . . . . .	25,155	4,870
1927-28 . . . . .	13,801	2,665
	1,000 bushels	
1933-34 . . . . .	23,846	4,982
1932-33 . . . . .	30,754	5,677
1931-32 . . . . .	13,705	2,601
1930-31 . . . . .	27,741	5,313
1929-30 . . . . .	42,108	8,363
1928-29 . . . . .	41,924	8,117
1927-28 . . . . .	23,001	4,442

*Switzerland:* The rains and heat of June were favourable to the growth of potatoes.

*Czechoslovakia:* By the end of June good progress had been made, but the crop was beginning to suffer from drought.

*United States:* According to the most recent estimate, production of potatoes this year will be about 221,000,000 centals (368,000,000 bushels against 231,172,000 (385,287,000) in 1934 and 205,370,000 (342,283,000) on the average of the five years ending 1933, percentages: 95.5 and 107.5

*Syria and Lebanon:* Area is this year about 12 % greater than last in Lebanon but only 50 % of last year's in the State of Latakia. In all the area is about 12,400 acres, practically three-quarters of the area in Syria and Lebanon as a whole. Up to the end of May conditions were favourable and crop condition at that date was good.

*Algeria:* Main crop potatoes were planted in normal conditions.

## SUGAR

In June and early July the weather in the European beet-growing countries was rather diverse but prevalently somewhat dry. In general, however, it was favourable and crop condition continued the improvement that was already observed in May after the somewhat unfavourable start of vegetation. The beet has generally a good appearance with leaves of good colour. The roots have not always attained normal dimensions but are developing regularly. Work in the fields has ended everywhere. In many areas growth was still backward at the middle of July but to a less extent and on smaller areas than in the preceding month.

In Germany crop condition in mid-July was rather better than a month previously, favoured by the warm wet weather that set in early in June. In Silesia crop condition at the beginning of July was generally good, save in

late-sown crops, which were somewhat backward. In some areas rains were desired. In Saxony also the crop was well advanced, favoured very often by adequate rains. In Thuringia growth improved but, if the leaves are abundant, the roots are still rather short. In the Brunswick area the last rains were very beneficial, also because they finally removed the danger of beet-fly spreading. In Central Hanover the fields have a good appearance, fresh and healthy, but root development is very backward with respect to last year. Dry weather is now desired contrary to the rest of Hanover, where further

### *Sugar-beet.*

COUNTRIES	CROP CONDITION (†)								
	1st July, 1935			1st June, 1935			1st July, 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany . . . . .	28	—	—	—	30	—	29	—	—
Austria . . . . .	23	—	—	27	—	—	23	—	—
Scotland . . . . .	—	—	95	—	—	—	105	—	—
Lithuania . . . . .	113	—	—	—	—	—	—	—	90
Netherlands x) . . . . .	—	—	99	—	—	97	—	—	—
Poland x) . . . . .	—	—	—	—	x) 30	—	—	—	—
Romania . . . . .	c)	—	—	—	—	—	—	—	—
Switzerland . . . . .	108	—	—	103	—	—	—	—	—
Czechoslovakia . . . . .	27	—	—	28	—	—	27	—	—
Canada . . . . .	—	100	—	—	—	—	—	—	74

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 497  
 — x) At middle of the month

rains would assist normal growth. In Pomerania and Brandenburg growth is very good and a good leafage covers the ground. In the Rhineland and still more in Southern Germany rains have been scarce but crop condition is satisfactory. In the Rhineland the excessive development of the leaves has been at the expense of the roots, which are rather small.

Crop condition improved in Austria thanks to the excellent weather and in Belgium where the rains in the latter half of June were followed by calm dry weather and the roots made rapid progress. The rains, however, favoured the spread of weeds.

Crop condition is good in Bulgaria and France. In the latter it is especially satisfactory in the northern areas, in Seine-et-Marne the beet has a good appearance but some bolting is reported. In Great Britain condition was somewhat irregular in June but in early July fine warm weather after a rainy spell gave a further impulse to growth. In Hungary and Italy crop condition is also good though the crops are somewhat backward and suffered from the cold weather in the early stages of growth, and is also good in Latvia and Lithuania, where, however, the night frosts in early June caused some damage.

In the Netherlands crop condition is not very good but in Poland, where hot dry weather at the end of June allowed work to be completed, it is better.

In Romania after a long period of drought the abundant rains at the end of June were of great benefit to beet. Even the later sowings developed regularly. Insect damage is insignificant.

In Czechoslovakia, where at the end of June drought and great heat began to be felt, the rains at the beginning of July, though irregular, were very beneficial. Development of the beet varied according to the amount of moisture, being excellent where rains were abundant and poor where rains were lacking, especially on light lands, where the roots are dried up. The drought continued in early July in central and eastern Bohemia and in some parts of Moravia and Slovakia. On the whole, however, progress was better in Moravia, Silesia and Slovakia than in Bohemia.

In Yugoslavia crop condition still reflected somewhat the not entirely favourable weather of the previous weeks but was on the whole satisfactory.

*Acreeage of sugar-beet.*

COUNTRIES	1935 <sup>a)</sup>	1934	Average 1929 to 1933	% 1935	
				1934 = 100	Average = 100
	acres				
Germany 1) . . . . .	893,823	858,869	845,750	104	106
Austria . . . . .	106,000	122,600	97,685	87	109
Belgium . . . . .	124,000	132,366	134,551	93	92
Bulgaria . . . . .	22,200	4,400	39,481	500	56
Denmark . . . . .	104,000	102,300	89,085	101	117
Spain . . . . .	175,000	250,000	213,922	70	81
Irish Free State . . . . .	55,000	45,581	12,239	119	444
Finland . . . . .	7,200	7,140	4,873	100	147
France . . . . .	577,000	678,830	668,939	85	86
Great Britain . . . . .	375,000	403,884	287,010	93	131
Hungary . . . . .	91,000	93,190	144,942	98	63
Italy . . . . .	226,947	223,522	252,269	101	90
Latvia . . . . .	35,000	35,600	15,000	97	233
Lithuania . . . . .	17,000	10,000	7,846	175	220
Netherlands . . . . .	101,000	104,097	117,463	97	86
Poland . . . . .	270,000	276,760	389,261	98	70
Romania . . . . .	85,500	91,813	87,294	93	98
Sweden . . . . .	122,300	125,077	94,460	98	129
Switzerland . . . . .	3,830	3,830	3,277	100	117
Czechoslovakia . . . . .	389,207	392,911	468,437	99	83
Yugoslavia . . . . .	69,000	63,808	112,346	108	62
<i>Total Europe a) . . . .</i>	<i>3,850,007</i>	<i>4,026,578</i>	<i>4,086,167</i>	<i>96</i>	<i>94</i>
U. S. S. R. . . . .	3,015,000	2,905,000	2,941,783	102	101
<i>Total Europe b) . . . .</i>	<i>6,865,007</i>	<i>6,932,578</i>	<i>7,027,950</i>	<i>98</i>	<i>97</i>
Canada . . . . .	53,000	52,100	47,772	102	111
United States . . . . .	847,000	2) 945,000	784,800	90	108
<i>Total North America . . . .</i>	<i>900,000</i>	<i>997,100</i>	<i>832,572</i>	<i>90</i>	<i>108</i>
Japan . . . . .	25,000	24,750	22,722	100	109
Turkey . . . . .	57,272	76,735	31,763	75	180
<i>Total Asia . . . .</i>	<i>82,272</i>	<i>101,485</i>	<i>54,485</i>	<i>81</i>	<i>151</i>
GENERAL TOTALS . . . . ( a) a)	4,832,279	5,125,163	4,973,224	94	97
( b) b)	7,847,279	8,031,163	7,915,007	97	99

<sup>a)</sup> Approximate data. — a) Not including U. S. S. R. — b) Including U. S. S. R. — 1) Area of sugar-bee delivered to factories. — 2) Area sown. Area harvested was 749,000 acres.

In the Soviet Union June and early July were rather dry and not very favourable to beet. There was wide diffusion of harmful larvae.

In the United States the weather was generally favourable until growth began.

Some small changes have been made in the table of European beet areas; those in the United States are larger, the maxima assigned by the A. A. A. having been replaced by the much smaller areas actually cultivated.

With the addition of the figures for area in Canada the table of world beet area is complete. Every continent shows a diminution in sown area with respect to last year, amounting to 2 % in Europe, 10 % in America, 9 % in Asia and 3 % for the world as a whole. The area harvested in the United States in 1934 was, however, to an exceptional degree smaller than that sown.

E. R.

\* \* \*

*Germany* Warm weather predominated during June but soil moisture and good rains were favourable to hoeing and the condition of the beet is better than it was in May

The analyses of the second week of July give the following results average weight of root 2.5 ounces, average weight of leaves 9.2 ounces, sugar content 9.1 % and weight of sugar per root 0.2 ounces. The corresponding figures of the third week of July are the following 3.5 ounces 8.0 ounces 11.9 % and 0.4 ounces

*Austria* At the end of June leafage was well developed. Cultivation was somewhat backward.

*Belgium* In June singling and hoeing were hindered by intermittent rains. Growth is backward, the crop has suffered on heavy lands from excessive moisture

The analyses of the first week of July give the following results average weight of root 0.4 ounces, average weight of leaves 2.5 ounces, sugar content 5.7 % and weight of sugar per root 0.2 ounces. The number of plants is calculated at about 32,400 per acre.

*Bulgaria* The rains in the latter half of June particularly favoured the crop

*France* The wet weather in June hindered hoeing which was late in many districts. Toward the end of that month the conditions improved and crops made up for the delay at least in part. Prospects are good

*Great Britain and Northern Ireland* Sugar beet in England and Wales is variable. There are some good crops but germination has often been irregular and damage has been caused in some parts by high winds. In Scotland the lack of sunshine during the early stages of growth made the growth of sugar-beet slower than usual. The improved conditions towards the end of June helped the crop greatly but it still remains rather below the normal in condition

*Hungary* The roots developed well up to the end of June. The third hoeing was completed at that date. Leafing suffered somewhat from drought. Only isolated insect damage is reported in two départements.

## Production of cane-sugar.

COUNTRIES	1934-35 1)	1933-34	Average 1928-29 to 1932-33	1934-35 1)	1933-34	Average 1928-29 to 1932-33	Percentages for 1934-35	
							1933-34 = 100	Average = 100
	Thousand centals			Short tons			%	
AMERICA.								
Antigua . . . . .	392	463	347	19,600	23,158	17,342	85	113
Argentina . . . . .	7,540	6,961	7,863	377,000	348,045	393,136	108	96
Barbados 2) . . . . .	1,736	2,496	2,023	86,800	124,806	101,158	69	86
Brazil . . . . .	15,432	14,330	22,000	800,000	720,000	1,099,986	108	70
Cuba . . . . .	56,218	50,945	78,613	2,810,000	2,547,193	3,930,573	110	72
Ecuador . . . . .	441	449	451	20,000	22,500	22,554	98	98
United States (La) . . . . .	4,680	4,100	3,584	234,000	205,000	179,200	114	131
Guadeloupe . . . . .	882	921	578	40,000	46,073	28,895	96	153
Jamaica . . . . .	1,676	1,609	1,291	84,000	80,000	64,536	104	130
Mexico . . . . .	5,291	4,145	4,742	260,000	207,000	237,082	128	112
Peru . . . . .	9,061	9,538	8,676	453,000	476,902	433,772	95	104
Puerto Rico . . . . .	14,881	22,077	16,222	744,000	1,103,811	811,101	67	92
Dominican Republic . . . . .	8,047	8,565	8,306	402,000	428,250	415,308	94	97
Total America . . . . .	126,277	126,599	154,696	6,330,400	6,332,738	7,734,643	100	82
ASIA.								
Taiwan . . . . .	21,054	14,265	17,725	1,053,000	713,226	886,224	148	119
India 3) . . . . .	113,904	109,133	78,266	5,695,000	5,457,000	3,913,000	104	145
Japan 4) . . . . .	2,321	1,635	1,915	116,024	81,740	95,773	142	121
Java . . . . .	10,551	13,604	55,081	527,560	680,184	2,753,998	78	19
Philippine Is. 5) . . . . .	14,110	31,526	21,572	710,000	1,580,000	1,078,572	45	65
Total Asia . . . . .	161,940	170,163	174,559	8,101,584	8,512,150	8,727,567	95	93
AFRICA.								
Egypt. . . . .	3,020	3,406	2,892	145,000	170,303	144,583	89	104
Madagascar . . . . .	190	183	133	9,500	9,150	6,650	104	142
Mauritius . . . . .	3,943	5,764	4,954	197,200	288,200	247,720	68	80
Reunion . . . . .	1,402	1,707	1,042	70,000	85,350	52,107	82	134
Union of South Africa 6) . . . . .	7,175	7,823	6,690	358,738	391,173	334,471	92	107
Total Africa . . . . .	15,730	18,883	15,711	780,438	944,176	785,531	83	100
OCEANIA.								
Australia . . . . .	14,476	15,068	12,304	723,796	753,380	615,180	96	118
Hawaii . . . . .	20,944	20,580	19,557	1,050,000	1,028,990	977,817	102	107
Fiji Is. . . . .	2,491	2,579	2,170	125,000	129,000	108,508	97	115
Total Oceania . . . . .	37,911	38,227	34,031	1,898,796	1,911,374	1,701,505	99	111
GENERAL TOTALS . . . . .	341,858	353,872	378,997	17,111,218	17,700,438	18,949,246	97	90

1) Approximate data. — 2) Including molasses reduced to terms of sugar — 3) Production of gur — 4) Production of sugar (refined and raw) and molasses. — 5) Production of sugar and *panocha* — 6) The figure published last month referred to 1935-36.

*Lithuania:* Conditions at the beginning of June were not sufficiently favourable to the sugar-beet crop. Moisture was adequate, but the cold weather and hoarfrost, though not serious, adversely affected the crops. On 10 June temperatures rose and at the end of the month the heat was considerable. Rain was sufficient and crop condition improved appreciably.

*Netherlands:* Growth of sugar-beet is very slow.

*Romania:* The rains toward the end of June were very favourable.



*Switzerland*: The rains and heat of June were favourable for the growth of sugar-beet.

*Czechoslovakia*: Earthing up of early-sown beets was in most areas carried out for the second time. Singling of second sowings was proceeding, but their development was hindered in many areas by lack of moisture. In places they suffered from torrential rains and from hail and to a considerable extent from insects.

*U. S. S. R.*: In the second half of June the weather was warm and dry in the principal producing regions (Ukraine and the Central Blackearth Region), in the first half of July high temperatures with local rain prevailed.

Large numbers of larvae of *Loxostege sticticalis* have appeared, on 8 July the beet area in Ukraine and in the provinces of Kursk and Voronezh so infested was 326,000 acres. The larva is particularly prevalent in Kiev, Kharkov and Viunitsa. A no less serious threat is the larva of *Euxoa segetum*, which has also appeared over large areas.

According to the Plan the area to be sown to sugar-beet this year was 3,015,000 acres and the production of beet 336,200,000 centals (16,810,000 short tons). The corresponding figures for last year were 2,923,000 acres and 250,400,000 centals (12,522,000 short tons).

*Antigua*: Beneficial rains fell during May throughout the island, considerably improving the condition of the young canes.

*Barbados*: By the end of May grinding of the 1934-35 cane crop was completed. The excellent rains fallen during the month were very beneficial for the canes of the next season's crop.

*United States*: According to the most recent estimate production of sugar beet this year about 169,000 000 centals (8,470,000 short tons) against 150 000 000 (7 500,000) in 1934 and 178,000 000 (8,903,000) on the average of the five years ending 1933 percentages: 113.2 and 95.1.

*British Guiana*: It was reported in May that the spring sugar output was a record one.

*Jamaica*: In May grinding of the sugar canes was completed in most estates and the output was above expectations.

*St. Kitts*: The weather in May continued to be dry, but the crop estimates remained good out it was expected that last year's record production would be surpassed this year.

*St. Lucia*: It was estimated in May that this season's production of "first" sugars reached the record figure of more than 150,000 centals (7,600 short tons).

*Trinidad*: During the month of May the growth of the young canes progressed well, and, taking also into account the increase verified in the acreage planted, crop prospects for the next season's sugar crop were very favourable.

*Taiwan*: Condition of new plantings on 1 July was average.

*India*: In the United Provinces there was rain everywhere in the latter part of June and first week of July.

Weather in the Punjab was dry in June and early July save for light rains in the middle of June. More moisture was badly wanted in most districts and topborer was reported.

Rainfall increased in Bihar and Orissa and in Bengal from mid-June to mid-July in most districts, while in Bombay there were favourable rains in mid-July.

*Java and Madura:* Up to mid-July the east monsoon prevailed. Rain occurred and new plantings were in good condition. Work was carried out in good time and irrigation water was adequate.

*Egypt:* Weather conditions in June were favourable to the growth of the sugar-cane crop while the abundance of water for irrigation also assists progress. Hoeing and manuring of the late and some general crops was in progress.

Crop condition of 1 July 1935 was 100 as at 1 June 1935 and 1 July 1934.

*Mauritius:* Weather conditions in May were favourable for the sugar canes, and the crop prospects were very good.

*Union of South Africa.* May crop condition averaged 7 % below normal. Very wet weather prevailed throughout the sugar belt and 127.08 to 224.03 mm. (5 to 8.82 ins.) of rainfall were registered. The heavy rains about the middle of June, however, affected the crop adversely.

According to the most recent estimate production of sugar in 1935-36 will be about 8,200,000 centals 410,000 short tons against 7,175,000 (358,700) in 1934-35 and 7,071,000 (353,600) on the average of the five years ending 1933-34; percentages 114 and 116.

## VINES

*Germany:* Owing to the hot weather in June, growth was greatly favoured. The situation of all the crops improved appreciably with respect to the preceding month. Crop condition on 1 July 1935 was 2.2 against 2.6 on 1 June 1935 and 1.7 on 1 July 1934.

*Austria:* At the end of June crop condition was very good. Flowering was rapid and occurred in good conditions.

*Bulgaria:* Conditions favoured growth.

*France:* The wet weather that prevailed in the first two decades of June assisted the spread of mildew without, however, causing serious damage. The return of fine weather toward the end of June and beginning of July, however, checked its spread. The high temperatures at the end of June and beginning of July were well supported by the vines, of which the condition was satisfactory almost everywhere. There are prospects of an abundant crop.

*Hungary:* The warm weather in the second half of June was very favourable to the vines. Flowering occurred in good conditions. The losses caused by parasites and hail are of small significance.

*Italy:* Growth is vigorous and promises good yields. Anticryptogamic treatment was continued regularly in June.

*Luxembourg:* Flowering of vines took place in average conditions. Fruiting is not as good as last year.

The area of vineyards in 1935 shows no change from that of last year and is 14.5 below the average of the five preceding years.

*Portugal:* Flowering has been abundant but persistent rains and subsequent low temperatures have injured the vines so that production is expected to be smaller than last year.

*Romania:* At the beginning of July crop condition was generally good.

*Switzerland:* The weather in June was very favourable to development, thanks to the summer temperatures of recent weeks the stocks made up for the delay caused by the bad weather in spring. Flowering occurred in good conditions. Mildew was not reported save in isolated instances and vine worm caused only some damage here and there.

According to the most recent estimate the area cultivated to vines this year is about 33,000 acres as in 1934 and against 32,000 on the average of the five years ending 1933; percentages 100.0 and 102.9. Crop condition on 1 July 1935 was 102 against 80 on 1 June 1935 and 110 on 1 July 1934.

*Czechoslovakia:* In Slovakia and Subcarpathian Russia the vines are flowering and in general show good development. A good vintage is expected

*Palestine:* Early-maturing varieties of table grapes were adversely affected by the khamsin, hence the lower yield. Madeleine and Chasselas grapes from the Eastern Emek were harvested in June and sold at excellent prices Muscat d'Hambourg were nearing maturity. Gaza and Jericho grapes were nearly ripe and were already appearing on the market by the end of June

*Syria and Lebanon:* Up to the end of May conditions were favourable throughout the territory save in Jebel ed Druz, where temperature underwent brusque variations, and there were some slight showers and violent winds. On 1 June crop condition was good throughout the country. The total area in Lebanon and the State of Latakia has this year remained unchanged, while there has been an increase of 50 % in the State of Jebel ed Druz (3,000 acres against 2,000 in 1934).

*Algeria:* Vines were developing normally in the Algiers département. Shedding was considerable among certain varieties. Eudemis butterflies are prevalent

*Cyrenaica:* Mediocre fructification is expected this year save in some districts of the Jebel which are in part this year producing for the first time. In June weather was normal.

*French Morocco:* Vines are good in appearance and mildew and oidium are slight up to the present. Anticryptogamic treatment was applied after the last rains. Compared with former years, treatment is made less frequently, often for reasons of economy.

*Tunisia:* The rather high humidity of the first two decades of June favoured development of oidium and mildew in some districts and necessitated considerable anti-cryptogamic treatment.

## OLIVES

*Italy:* On the whole growth was regular in June and a good crop was expected. Lack of moisture has, however, caused shedding in some provinces.

*Portugal:* Flowering was fairly good and the fruit is more numerous than last year, when the crop was very small.

*Palestine:* The crop suffered especially from the heat wave that prevailed in May and the beginning of June. A certain proportion of fruit ceased to develop while another part dropped. Damage varies with district. In the Acre sub-district the crop suffered least, whereas in Samaria and Jerusalem it suffered much more. Production was expected to be poor.

*Syria and Lebanon:* Conditions have been normal and generally favourable save in the State of Latakia, where the hot wind in May caused shedding in some groves. In the States of Lebanon and Latakia the area cultivated this year has increased by 250 acres in all on that of last year, that is, by about 0.4 %.

*Algeria:* There was considerable shedding of olives in Tizi Ouzou.

*French Morocco:* Shedding in Oudjd and Meknes, psylla infestation at Fez as well as violent winds and drought have appreciably reduced the fruiting of olive trees.

## COTTON

*Bulgaria* Crop condition of cotton on 1 July was good.

*U. S. S. R.:* In the new producing regions (Ukraine, Northern Caucasus, Crimea, Leningrad Region) the following dates for completion of sowing have been fixed to assure normal development: 1 June, 15 June, 1 July and 15 July. The first three hoeings had on the dates indicated been completed on 85 %, 72 % and 62 % of the area by 10 July, that is, five days before the date fixed for the fourth hoeing the percentage of the hoed area was only 12 %. The backwardness of hoeing was beginning to cause anxiety for the crop.

In Central Asia the second half of June was very hot and dry; in the first half of July there were rains in some regions, toward the middle of the month hot winds were beginning to affect the crop.

On 10 July the first irrigation had been carried out on the *kolkhozi* on 87.4 % of the area, the second on 45.9 %, the third on 20.7 % and the fourth on 5.6 %.

According to the plan the area to be sown to cotton this season is 4,800,000 acres, of which 3,894,000 irrigated and with production of ungiuned cotton amounting to 34,600,000 centals, Last season the provisional figures were as follows. 4,787,000 acres, 3,885,000 acres and 25,800,000 centals.

*United States:* According to a report of 3 July, temperatures during the previous week averaged near normal, with rainfall mostly light to moderate. Generally weather was more favourable than recently in the Central and Western part of the belt but rain is needed in many Eastern districts. In Texas the weekly progress was mostly

fair to good, except for some lowlands, but recent weather has been favourable for insect activity in some sections of the State.

In Western Oklahoma progress was fair to good, but little improvement in the East, where poor progress or deterioration is reported. In the Central States of the belt, conditions are mostly favourable except for some North cotton lands, where there is much complaint of weeds.

Western Tennessee shows some improvement. Progress was excellent in much of Arkansas, though cotton lands continue too wet. In the Eastern portion of the belt, where June rainfall was largely deficient, cotton is holding fairly well, though rain is needed badly in many places. There is some premature blooming and shedding.

(Telegram of 25 July): Weather has been favourable for cotton save in the east, where rain has been excessive.

According to the most recent estimate the area sown on 1 July to cotton this year is 29,166,000 acres against 27 883,000 in 1934-35 and 40 860,000 on the average of the five years ending 1933-34. Percentages 104.6 and 71.4

*India* In the Central Provinces the weather in June and the first week of July was warm and cloudy with light to moderate showers. The monsoon has been weak. Sowing began in Amraoti and Yeotmal toward the middle of June and in the latter half of the month had become general.

In Bombay and Sind there were favourable rains in mid-July. The crop was going on well and the outlook was satisfactory.

In Madras rainfall increased on the west coast from the beginning of June to the first week of July, when rainfall was very heavy, in other parts the rainfall was fairly good.

Weather in the Punjab in June and early July was dry save for light rains in the middle of June and more moisture was badly wanted in most districts by 8 July. Stemborer was reported in early June in parts of Rohitak.

*Syria and Lebanon* The area under cotton this year in the State of Latakia would appear to be 80 % greater than last year, being estimated at 7,200 acres against 4 000 in 1934-35. Conditions up to the end of May were favourable and at that date crop condition was good, being 100, as on 1 June 1934.

*Egypt* The moderate heat and humidity of June were favourable to the growth of cotton. Flowering was general in the north of the Delta except for late crops. The bolls are beginning to form in the early crops. As regards Upper Egypt and the South of the Delta the growth of some early crops was checked, formation of branches and bolls was increasing in the main crop. Manuring and hoeing of late crops continued. Infestation by cottonworm persisted in the majority of fields in Lower and Middle Egypt. The egg-masses are more numerous than usual they attained their maximum in the third week of June and subsequently diminished. Opening of the bolls occurred on areas that, though large, bear only a slight proportion of the total. The campaign against pests continued to be intense. In some parts of the North crickets were reported to have caused slight damage. They have been combatted with poisonous bait. Aphis has attacked scattered areas in Lower Egypt and in some provinces of Upper Egypt. Wilt disease in Sakellariadis is increasing affecting up to 50 % in the fields attacked. According to a cable from the Ministry of Agriculture at Cairo the area under cotton this season is 1,733,000 acres against 1,707,000 in 1934-35 and 1,765,700, the five-year average. Percentages 96.4 and 98.1

**Nigeria:** The total production in Northern Nigeria was estimated in May, after the close of season, at about 200,000 centals (42,000 bales of 478 lb.) ginned cotton, a figure exceeding the 1925-26 record, which was 191,600 centals (40,100 bales). A keen demand for cotton seed was reported and it was forecasted that distribution would be this year even larger than in 1934.

**Uganda:** During May rains were exceptionally abundant. Clearing and preparation of plots was proceeding satisfactorily in most areas, but the acreage planted up to the end of the month was not considerable.

## FLAX

**Belgium:** Early-sown crops are less satisfactory than those sown in May; in some areas they are laid.

**Bulgaria:** Crop condition of flax on 1 July was good.

**Great Britain and Northern Ireland:** The weather conditions in Northern Ireland during June were very unsettled, but, in general, the month was extremely wet and temperatures were about moderate from practically the beginning of June heavy showers of rain fell intermittently and brought a welcome change in the conditions resulting from the previous period of drought. Towards the end of the month, however, conditions became drier and warmer again.

Although the flax crop improved considerably with the rains the uneven brairding is still reflected in a good many fields. Pure-line varieties, however, are looking well generally and promise satisfactory yields.

### Area and Crop Condition of Flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)												
	1935	1934	Average 1929 to 1933	% 1935														
				1934 = 100	Aver = 100	I-VII-1935			I-VI-1935			I-VII-1934						
								a)	b)	c)	a)	b)	c)	a)	b)	c)		
1,000 acres																		
Germany . . . . .	51	22	20	235.5	257.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Austria . . . . .	...	4	7	...	...	2.5	—	—	2.7	—	—	—	—	—	2.3	—	—	—
Bulgaria . . . . .	10	4	1	229.0	941.2	—	—	—	—	—	—	—	—	—	—	—	—	—
France . . . . .	56	58	54	97.2	104.8	—	—	63	—	—	—	—	—	—	—	—	—	—
Hungary . . . . .	31	30	—	104.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania 3) . . . . .	8	8	—	104.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Netherlands 3) . . . . .	227	150	159	151.6	143.3	110	—	—	—	—	—	—	—	—	—	—	—	90
Poland . . . . .	23	15	24	150.5	97.5	4) 105	—	—	—	—	—	—	—	—	—	—	—	—
Czechoslovakia . . . . .	28	262	261	...	...	—	—	—	4) 3.2	—	—	—	—	—	—	—	—	—
Canada . . . . .	217	23	27	117.2	101.8	—	—	—	—	—	—	—	—	—	—	—	—	—
United States . . . . .	2,138	227	463	95.6	46.8	—	—	95	—	—	—	—	—	—	—	—	—	78
India . . . . .	2,138	969	2,500	220.6	85.5	—	—	77.2	—	—	—	—	—	—	—	—	—	47.9
Egypt . . . . .	3,381	3,261	3,096	103.7	109.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Egypt . . . . .	5	5	3	92.8	155.2	—	—	—	—	—	—	—	—	—	—	—	—	—

†) For an explanation of the signs and of the figures of crop conditions, see the note on page 497 and the cereals table. — 1) Area cultivated principally for seed. — 2) Area for fibre. — 3) Flax and hemp — 4) At the middle of the month.

*Hungary:* Flax principally for fibre is rather short-stemmed. That mainly for seed is also low and in some districts infested with weeds. Harvesting had begun by the end of June.

*Latvia:* In 56.1 % of the replies of agricultural correspondents crop condition on 1 July was average, in 28.2 % above average and in 15.7 % below average.

*Lithuania:* The beginning of June was not favourable to the flax crop. Moisture was adequate but cold and hoarfrost, though they were not serious, were harmful to the crops. On 10 June temperature rose and at the end of the month the heat was considerable. Rainfall was sufficient and crop condition improved appreciably.

*Netherlands:* There was lodging of the flax crop in some places after the heavy rains of June. In the east in the province of Groningen some fields had to be resown owing to the damage caused by cold. The proportion of white flower crop is 60 % in Groningen, 100 % in Friesland, 90 % in the islands of South Holland and in Zeeland and 85 % in the west of North Brabant.

*Czechoslovakia:* In some areas the crop is well developed and thick but by 1 July it was beginning to suffer from drought. Crop condition was average to good.

*U. S. S. R.:* On 10 July the first hoeing had been made on 93.2 % of the area and the second on 31.8 %.

According to the Plan the area to be sown to flax for fibre (*dolgunets*) this year is 5,115,000 acres and the production of fibre 13,670,000 centals. The corresponding figures for last year were 5,214,000 acres and 11,700,000 centals.

*Argentina* (Telegram of 22 July): Sowings are late because of the lack of rain.

*United States:* According to the most recent estimate, production of flaxseed this year will be about 8,120,000 centals (14,500,000 bushels) against 2,942,000 (5,253,000) in 1934 and 7,573,000 (13,523,000) on the average of the five years ending 1933; percentages: 276.0 and 107.2.

*Egypt:* According to the most recent estimate production of linseed this year be about 35,000 centals (62,400 bushels) against 41,600 (74,200) in 1934 and 22,300 (39,800) on the average of the five years ending 1933; percentages 84.1 and 156.7. The production of fibre is respectively in pounds: 2,931,900; 3,192,500 and 2,069,500. Percentages 91.8 and 141.7.

## HEMP

*Bulgaria:* Crop condition of hemp on 1 July was good.

*Hungary:* At the end of June growth was satisfactory. Flowering was in progress.

*Italy:* According to the most recent estimate the area cultivated to hemp this year is about 165,000 acres against 156,000 in 1934 and 166,000 on the average of the five years ending 1933; percentages 106.0 and 99.8.

*Poland:* On 15 June crop condition was 3.5 against 2.8 at the same date last year.

*Czechoslovakia:* On 1 July crop condition was above average in most parts of the country.

*U. S. S. R.:* According to the Plan the area to be sown to hemp was 1,634,000 acres and the production of fibre 5,776,000 centals. The corresponding figures of last year were 1,305,000 acres and 4,652,000 centals.

## TOBACCO

*Belgium:* The crop is recovering from the rains and the cold.

*Bulgaria:* The rains of the second half of the month were particularly helpful to the growth of tobacco.

*Irish Free State:* The production of tobacco in 1934 is now estimated to have been approximately 700,000 lb. against 600,000 lb. in 1933. Percentage: 116.7.

*Greece.* According to information collected by the Office for the Protection of Greek Tobaccos, the area under the crop this season is 213,000 acres, against 193,000 last year, an increase of 10.2 %.

Production this season may be estimated on the basis of the data referring to the area actually cultivated and the average unit-yield, as follows: Central Western Macedonia: 10,600,000 to 11,700,000 lb.; Thessaly and Phthiotidos-Phokidos 13,000,000 to 13,700,000 lb.; Aitolias-Akarnanias 8,800,000 to 10,100,000 lb.; Peloponnesou 4,200,000 to 4,900,000 lb.; the Islands 3,100,000 to 3,500,000 lb.; Epeirou 660,000 to 750,000 lb.; Attikes-Boiotias 550,000 to 620,000 lb. For Eastern Macedonia and Thrace no forecast of unit-yields is possible, transplanting being always later than in the other areas, especially this year owing to the prolonged drought. An average of 570 lb. per acre in Eastern Macedonia and of 490 lb. in Thrace is expected.

*Hungary.* Due to the drought, development was only slow toward the end of June

*Czechoslovakia:* In the eastern districts the crop shows in general satisfactory development

*U. S. S. R.:* According to the Plan the area to be sown this year was 496,000 acres and production 5,335,000 centals. For last year the corresponding figures were 470,000 acres and 4,542,000 centals.

*United States:* According to the most recent estimate, area cultivated to tobacco this year is about 1,502,000 acres against 1,271,000 in 1934 and 1,853,000 on the average of the five years ending 1933; percentages 118.2 and 81.0. The corresponding production is estimated at about 1,193,000,000 lb. against 1,046,000,000 and 1,434,397,000; percentages: 114.1 and 83.2.



*Java and Madura:* In 1934, tobacco in Java and Madura was grown on 413,000 acres, or 29 % more than in 1933 and 8 % more than the average acreage of the five preceding years. The greater part of the crop is grown in the east of Java, where it covers 240,000 acres. In the central part of Java 150,000 acres are grown and in the west 23,000 acres. The acreage on which the crop failed in 1934 was 9,000 acres or 2 % of the planted area, while in 1933 it failed on 45,000 acres. The crop which was still standing at the end of 1934 covered only 14 acres, distributed equally between sawahs and tegalans. No planting was done in December but in several places sowings are being prepared and the soil is being prepared for transplanting.

Exports of krossok leaf from Java in 1934 amounted to 45,158,000 lb. (54,935,000 lb. in 1933 and 90,804,000 lb. in 1932).

Tobacco has already been planted in the fields in the Vorstenlanden but it is still too early to obtain precise information on the state of the crop. The area planted is about 10 % smaller than that of last year but it is thought that the yield will be about the same provided unforeseen developments do not subsequently change the situation. No insect or disease damage has been notified. The quality of the crop is nearly normal and even a little better. In general, it may be said that the crop is satisfactory.

The crop in Madura this year was smaller than usual. The Madura output is not a very important factor in the tobacco industry. The tobacco is of low quality used for blending on account of its light colour.

In commercial circles it is considered that the tobacco industry at present is in a distinctly bad situation but the statements may be somewhat exaggerated. It is expected that restrictions will be placed on exports, which will probably result in an improvement in quality. Natives are already giving more attention to quality. The government hopes that the new restrictions on the export of low-quality tobacco will raise the standard of quality and improve the market.

*Palestine:* The crop was well forward in June and hoeing was in progress. In Samaria District transplanting was concluded during the month.

*Syria and Lebanon:* The area under tobacco in the two States of Lebanon and Latakia is almost the same as last year. Conditions were favourable up to the end of May, when crop condition was good (100) in Lebanon and 100 in Latakia, as on 1 June 1934. Worms caused some damage by eating the stems of newly planted tobacco in Latakia.

*Algeria:* The first transplantings of tobacco were successful but those made later were in many cases destroyed by the scirocco.

According to the most recent estimate area cultivated to tobacco this year is about 53,400 acres against 56,600 in 1934 and 53,700 on the average of the five years ending 1933; percentages 94.2 and 99.3.

*French Morocco:* The area under tobacco in Morocco has increased steadily in recent years. In 1935 a total area of 620 acres was cultivated in the districts of Chaouia, Gharb, Wazzan and Berkane against 430 acres in 1934 and 350 acres on the average in the five preceding years. Percentage 143.0 % and 175.0 %.

The 430 acres cultivated in 1934 yielded about 407,900 lb. of cured tobacco, giving an average yield of slightly more than 892.2 lb. per acre.

## HOPS

*Belgium:* Appearance is fairly good.

*Great Britain and Northern Ireland:* Hop vines are healthy and vigorous but still backward. Rather severe attacks of aphids have occurred in some gardens.

*Czechoslovakia:* Growth is backward. On 1 July condition was good in the principal producing areas. In some districts the crops had suffered from storms.

*United States:* According to the most recent estimate, area cultivated to hops this year is about 39,000 acres against 37,000 in 1934 and 23,500 on the average of the five years ending 1933; percentages: 105.4 and 165.8. The corresponding production is estimated at about 49,400,000 lb. against 41,200,000 and 29,415,000; percentages: 119.9 and 167.9.

## OTHER PRODUCTS

### Cacao.

*Brazil:* In the latter half of May and the first half of June the weather, particularly in the Ilheus district, favoured movement of the crop, and activity was uncommonly great. According to the Instituto de Cacao da Bahia, total entries in May were 4 million pounds, of which 50 % was received during the last week of the month. In June, despite a return of rainy weather, entries continued to increase and if weather did not become worse, up to 20 million pounds were expected by the end of the month. A very provisional estimate of the intermediate crop is 110 million pounds, which would be a record for the period and may even be exceeded. It was calculated in mid-June that from 90 to 110 million pounds of the intermediate crop had already been sold.

Prospects for the main crop were not so satisfactory and it was thought that, as in the past season, there might be relatively small entries from October onward. Planters were not selling to any great extent in May and the first half of June.

*Gold Coast and British Togoland.* The latest estimate of the 1934-35 major crop is 587 million pounds, the total exports from ports or over the eastern frontiers from October to May having been 468 million, to which has to be added 125 million lb. of stocks and subtracted 7 million carryover or new crop. The following are the data of crop movement in the first eight months of 1934-35 in millions of pounds —

	May 1935	Oct. 1934 to May 1935	May 1934	Oct. 1933 to May 1934
Railway offloadings, Takoradi . . . . .	4	185	—	177
Exports:				
Takoradi . . . . .	8	154	6	175
Accra . . . . .	9	194	7	171
All ports . . . . .	18	447	15	428

The total inspected at all centres from October to May was 578 million pounds, not including exports over the Eastern Frontier. Up to the end of May 23 million pounds had been rejected. In May the average size of beans was 134.6 per 14 cubic inches or 112.0 per 4 ounces, while measured in millimetres the average was  $22.3 \times 12.2 \times 6.9$ .

Minor crop harvesting was proceeding in May and marketing of small lots continued. The weather was generally favourable for growth; rainfall was above average in the greater number of districts.

*Nigeria:* The cacao season was closing in May, exports showed a slight increase over the 1934 figure.

## Tea.

*U. S. S. R.:* According to the Plan the area to be planted in tea this year was 85,500 acres and the production, 27,800,000 lb. The corresponding figures for last year were 83,500 acres and 14,550,000 lb.

*India:* In North India the early part of May was hot and dry but latterly good rains fell and prospects improved. In the South the weather was warm and showery early in the month but became dry later: immediate prospects were only moderate.

In North India production up to the end of May showed a decrease of 218,700 lb. on the corresponding figure of last year. In South India the outturn was 14,900 ahead of that to the same date last year.

*Japan:* Favoured by the weather crop condition on 1 July was normal.

## Coffee.

*Brazil:* According to the National Coffee Department the total quantity destroyed up to the end of May was 4,637,915,000 lb. of which 126,155,000 were destroyed in the first five months of this year.

*Kenya:* The weather in May was considerably rainy, particularly on the coast, and improved the crop prospects.

*Uganda:* It was reported in May that, thanks to the favourable weather conditions, prospects for the native coffee crop were good.

## Groundnuts.

*Egypt:* Sowings were ended toward 20 June. Germination and growth were satisfactory. Irrigation and hoeing were going on. Cottonworm was reported on a small area in Charkieh but its effects were small. Crop condition on 1 July 1935 was 100 as at the same date in 1934.

## Colza and sesame.

*Austria:* At the beginning of July harvesting of colza had been ended. Formation of the pericarps was good.

*Bulgaria:* The area cultivated this year to sesame is estimated at about 16,800 acres against 24,300 acres in 1934 and an average in the preceding five years of 20,800 acres; percentages: 69.3 and 80.8.

*Hungary:* At the beginning of July harvesting of colza was ended. Unit-yield was generally average.

*Netherlands:* Owing to the low temperatures colza is not well developed. The following are the final estimates of area under colza and mustard and crop conditions in mid-June according to the system of the country.

	1935	1934	Average 1929-33	% 1935		Crop condition	
				1934	Average = 100	13 VI 1935	13 VI 1934
Colza (acres) . . . .	3,655	6,207	3,882	58.9	94.1	63	72
Mustard (acres) . . .	3,153	3,025	5,291	105.2	60.2	66	73

*Poland.* On 15 June condition of winter colza was, according to the system of the country, 2.7 and that of spring colza 3.0 against 3.2 and 2.9 respectively at the corresponding date last year.

In the first decade of July the colza harvest was about to end in the west and centre

*Japan.* According to the most recent estimate area cultivated to colza this year is about 242,000 acres against 224,000 in 1934 and 180,000 on the average of the five years ending 1933; percentages 108.3 and 128.5. The corresponding production is estimated at about 2,579,000 centals (5,158,000 bushels) against 2,382,000 (4,765,000) and 1,803,000 (3,606,000); percentages 108.3 and 143.0.

*Palestine:* In the Southern district sesame shows considerable variation but at the end of June was generally poor except in parts of the central plain and foothills.

## Jute.

*India:* Sowing proceeded in June in Bengal and in Bihar and Orissa. Rainfall increased from mid-June to mid-July in most districts. In parts of Bhagalpur (Bihar and Orissa) there was some flood damage.

## Sericulture.

*Bulgaria:* Silk worms are developing in favourable conditions. According to the most recent estimates, the amount in incubation this year is 24,300 ounces against 27,300 in 1934 and an average of 33,100 in the five preceding years; percentages: 89.1 and 73.5.

*Chosen:* According to the most recent estimate production of spring cocoons this year will be about 31,523,000 lbs against 33,566,000 in 1934 and 28,145,000 on the average of the five years ending 1933; percentages 93.9 and 112.0.

*Iran:* According to information from Recht, the capital of Gilan, the principal producing area, rearings of silkworms and production of cocoons in that province were entirely satisfactory this year.

*Japan:* According to the most recent estimate production of spring cocoons this year will be about 345,220,000 lbs against 400,060,000 in 1934 and 422,920,000 the average of the five years ending 1933, percentages 86.3 and 81.6.

*Syria and Lebanon:* The number of eggs placed in incubation is equal to that last year in Lebanon and 16 % smaller in the State of Latakia (5,300 lb against 6,350 lb. in 1934). The progress of rearings was good in the latter State and condition according to the system of the Institute was on 1 June 110. The area under mulberries in Latakia is rather smaller than last year (7,400 acres against 8,650).

## FODDER CROPS

*Germany.* The warm weather and good rains of June and the moisture reserves in the soil were beneficial to the growth of fodder crops. An improvement in crop condition, compared with last month and with the same period of last year, is reported in all parts.

*Austria.* Mangels are generally developing well. The first cut of clover and alfalfa gave good results while production of sainfoin was exceptionally large.

The hay crop on permanent meadows was plentiful and of very good quality. At the end of June common pastures and alps provided adequate feed.

*Belgium:* Crimson clover has given fairly good unit-yields but ordinary clover is less satisfactory. Thanks to the rains the hay crop is abundant but quality leaves something to be desired.

The data of production of fodder crops in 1934 compared with the figures for 1933 and the average for the preceding five years are as follows (in thousands):—

		1934	1933	Average 1928-1932	% 1934 1933 — 100	1934 Average 100
Mangels	(centals)	120,244	116,221	117,987	103.5	101.9
	(sh tons)	6,012	5,811	5,899		
Carrots, main crop	(centals)	657	567	718	116.0	91.5
	(sh tons)	33	28	34		
Turnips and swedes, main crop	(centals)	4,771	3,619	4,397	131.8	108.5
	(sh. tons)	239	181	220		
Crimson clover (1)	(centals)	4,891	4,401	4,751	111.1	103.0
	(sh. tons)	245	220	238		

		1934	1933	Average 1928-1932	% 1933 = 100	% 1934 Average = 100
Red clover (2)	(centals)	8,709	9,402	8,771	92.6	99.3
	(sh. tons)	435	470	439		
Other clover (1)	(centals)	1,617	1,748	1,705	92.5	94.9
	(sh. tons)	81	87	86		
Alfalfa (1)	(centals)	1,477	1,309	1,295	112.8	114.1
	(sh. tons)	74	65	65		
Sainfoin (1)	(centals)	415	365	422	113.7	98.2
	(sh. tons)	21	18	21		
Meadow-hay, mown (1)	(centals)	18,581	22,836	23,338	81.4	79.6
	(sh. tons)	929	1,142	1,167		
Rye-grass and timothy (1)	(centals)	732	923	841	79.3	87.1
	(sh. tons)	37	46	42		
Turnips (catch crop)	(centals)	50,420	81,022	60,242	62.2	83.7
	(sh. tons)	2,521	4,051	3,012		
Carrots (catch crop)	(centals)	1,715	1,880	1,766	91.2	97.1
	(sh. tons)	86	94	88		
Spurry (catch crop)	(centals)	2,306	3,648	3,518	63.2	65.5
	(sh. tons)	115	182	176		

*Bulgaria:* Weather in June was particularly favourable to development of fodder plants.

The first estimates of production are as follows:—

		1935	1934	Average 1929 to 1933	% 1935 1934 = 100	Average = 100
Permanent meadows	(ooo cent.)	19,365	10,428	17,489	185.7	110.7
	(ooo short tons)	968	521	874		
Temporary meadows	(ooo cent.)	3,613	2,994	3,333	120.7	108.4
	(ooo short tons)	181	150	167		
Fodder millet	(ooo cent.)	1,215	938	1,168	129.6	104.1
	(ooo short tons)	61	47	58		

*Estonia:* Weather conditions for grasses were in June as a whole satisfactory, except in some regions where night frost did some damage. At the same time, an insufficient amount of precipitation made itself felt, in the northern part of the country, whereas moisture conditions in the southern part were more or less satisfactory.

*Irish Free State:* The weather in June was wet, with less than the normal amount of sunshine. All fodder crops benefited considerably from the rain and were very promising.

The hay crop will probably be somewhat below that of last year.

*France:* The persistent bad weather up to 20 June hindered haymaking, which was very late. The fine weather at the end of June, however, permitted the bringing in of hay in fairly good condition though in several areas there were complaints of mediocre quality. Production is large almost everywhere.

## The condition of fodder crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 July 1935			1 June 1935			1 July 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
<b>CLOVER:</b>									
Germany . . . . .	2.9	—	—	—	—	3.2	—	—	3.7
Austria 1) . . . . .	2.4	—	—	2.5	—	—	2.7	—	—
Estonia . . . . .	—	—	99	—	—	—	—	—	83
Italy . . . . .	—	—	g)	—	—	—	e)	—	—
Lithuania:									
annual . . . . .	...	...	...	3.4	—	—	—	—	2.6
biennial . . . . .	...	...	...	—	—	2.5	—	—	1.9
Netherlands:									
red clover . . . . .	—	—	2) 63	—	—	—	2) 68	—	—
white clover . . . . .	2) 67	—	—	—	—	—	2) 74	—	—
Poland . . . . .	—	—	2) 2.9	—	—	2) 2.2	—	—	2) 2.2
Canada 3) . . . . .	—	—	98	—	—	88	—	—	82
Egypt (bersim) . . . . .	—	—	89	—	100	—	—	100	—
<b>ALFALFA:</b>									
Germany . . . . .	2.4	—	—	2.7	—	—	—	—	3.4
Austria . . . . .	2.1	—	—	2.4	—	—	—	3.0	—
Italy . . . . .	—	—	g)	—	—	—	e)	—	—
Canada . . . . .	103	—	—	—	—	88	—	—	72
<b>MANGELS:</b>									
Germany . . . . .	2.8	—	—	—	—	3.1	—	3.0	—
Austria . . . . .	2.6	—	—	2.5	—	—	2.5	—	—
Scotland . . . . .	—	100	—	—	—	—	—	—	—
Italy . . . . .	—	—	g)	—	—	—	e)	—	—
Norway 4) . . . . .	—	—	96	—	—	—	—	—	—
Canada 4) . . . . .	—	—	95	—	—	—	—	—	89
<b>TEMPORARY MEADOWS:</b>									
Austria 5) . . . . .	2.1	—	—	2.4	—	—	2.6	—	—
Denmark:									
Islands . . . . .	—	—	96	—	—	—	—	—	82
Jutland . . . . .	—	—	84	—	—	—	—	—	89
Norway . . . . .	—	—	96	—	—	—	—	—	97
Switzerland . . . . .	109	—	—	—	—	93	—	—	—
<b>PERMANENT MEADOWS:</b>									
Germany:									
irrigated meadows . . . . .	2.4	—	—	2.9	—	—	—	—	3.3
other meadows . . . . .	2.7	—	—	—	—	3.2	—	—	3.8
Austria . . . . .	2.1	—	—	2.9	—	—	2.8	—	—
Denmark:									
Islands . . . . .	—	—	97	—	—	—	—	—	88
Jutland . . . . .	—	—	92	—	—	—	—	—	91
Estonia . . . . .	113	—	—	—	—	—	—	—	—
Italy . . . . .	—	—	g)	—	—	—	e)	—	—
Lithuania . . . . .	...	...	...	—	—	2.5	—	—	—
Norway . . . . .	—	—	98	—	—	—	—	—	2.1
Netherlands 6) . . . . .	—	—	2) 63	—	—	—	2) 58	—	97
Poland:									
ordinary meadows . . . . .	—	—	—	—	—	—	—	—	—
low meadows . . . . .	2) 3.1	—	2) 2.9	—	—	2) 2.2	—	—	2) 2.0
meadows improved . . . . .	2) 3.2	—	—	—	—	2) 2.2	—	—	2) 2.6
Switzerland . . . . .	108	—	—	—	—	2) 2.7	2) 3.1	—	—
<b>PASTURES:</b>									
Austria . . . . .	2.4	—	—	—	—	3.2	2.4	—	—
Denmark:									
Islands . . . . .	—	100	—	—	—	—	—	—	69
Jutland . . . . .	—	—	99	—	—	—	—	—	74
Italy . . . . .	—	—	g)	—	—	—	e)	—	—
Norway . . . . .	—	—	95	—	—	—	—	—	—
Netherlands . . . . .	—	—	2) 64	—	—	—	2) 53	—	—
Poland:									
permanent pastures . . . . .	—	—	2) 2.8	—	—	2) 2.0	—	—	2) 2.1
temporary pastures . . . . .	—	2) 3.0	—	—	—	2) 2.3	—	—	2) 2.3
Switzerland . . . . .	103	—	—	—	—	—	—	—	—
Canada . . . . .	103	—	—	—	—	—	—	—	86

Above the average. — b) Average. — c) Below the average. — d) Excellent. — e) Good. — f) Average. — g) Bad. — †) See explanation of the various systems on page 497. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Clover and hay. — 4) Turnips. — 5) Klee grass. — 6) Meadows for hay.

*Great Britain and Northern Ireland:* An abnormally cold and dry May was followed by a spell of unsettled weather. There was much rain during June and temperatures remained rather low until the last week of the month, when there was a much needed warm and sunny spell and all crops made good progress. Hay-making was held up by the showery weather, and in many parts was not generally started until the last week of June. Hay yields are expected to be somewhat lower than the average. Pastures recovered very rapidly during the month. Mangels are generally good but rattes backward. Turnips and swedes similarly made good progress during June and fly is very much less prevalent than a year ago. In Northern Ireland the hay crops have responded to the moist conditions, in June but the yield of first crop hay may be slightly below the average. Cutting has commenced and is proceeding satisfactorily with the favourable weather.

Mangels and early-sown turnips also benefited from the rains.

*Hungary:* Mangels are fairly well developed. The second cutting of clover and alfalfa gave poor and average yields respectively. Other fodder crops have suffered from drought.

The first cut of permanent meadows is average both in quality and quantity. Growth of pastures was hindered by drought.

*Italy:* In June pastures gave only a poor yield and production of meadows has generally been mediocre.

*Latvia:* In 42.0 % of crop correspondents' reports condition of annual clover on 1 July was average, in 14.7 % above average and in 43.3 % below average. The corresponding figures for biennial clover were 30.8 %, 4.9 %, 64.3 % and for permanent meadows 37.9 %, 8.5 %, 53.6 %.

*Netherlands:* Red clover was growing fairly well in the middle of June. In Zeeland crop condition was average and in many places weeds were present to a serious extent. White clover was fairly satisfactory. The warm wet weather was favourable to the growth of grass. Grass in permanent meadows, however, is still short.

The following are the most recent estimates of area under fodder crops compared with those of the past year and the average.

	1935	1934	Average 1929-33	% 1935	
				1934 = 100	Average = 100
	(Thousand acres)				
Temporary meadows . . . . .	51.7	58.5	44.5	88.4	116.3
Clover . . . . .	60.6	68.2	74.1	88.9	81.7
Mangels . . . . .	115.2	114.0	106.9	101.0	107.7
Kohlrabi and turnips . . . . .	22.8	26.4	29.8	86.6	76.7
Other fodder roots and tubers . . .	3.5	4.1	4.7	87.0	75.8
Other fodder plants . . . . .	17.6	15.8	15.9	111.2	110.3

*Poland:* The hot weather and rain, principally stormy in character, during June throughout the country, appreciably ameliorated condition of fodder crops.

*Romania:* The rains at the end of June were very beneficial to permanent meadow and pasture.



*Switzerland:* Abundant precipitation, alternating with warm, sunny days, were especially favourable in June to the growth of grass on permanent and temporary meadows. Both on the plateau and in the mountain areas a fully satisfactory hay crop as regards both quality and quantity was brought. Growth in of the second cut is also satisfactory. On the alpine pastures, owing to the delay in the snow melt, vegetation was somewhat late but subsequently growth appeared to be proceeding satisfactorily, with the result that the high pastures could also be occupied. Straw crops in marshy land also promised entirely good yields.

*Czechoslovakia:* Meadows and clover showed a good recovery at the beginning of June so that haymaking, which, thanks to the favourable weather, was completed without difficulty, gave very good results both in quantity and quality. The heat and drought, however, caused fears of a mediocre aftermath.

*U. S. S. R.:* On 10 July mowing had been carried out on 53,418,000 acres, 39 4 % of the area, against 48,910,000 at the same date last year.

*Argentina* (Telegram of 22 July) Due to the drought pastures are not very good.

*Canada:* According to the most recent estimates, the acreages under the chief fodder crops this year with comparisons with 1934 and the preceding five years are as follows.

	1935	1934	Average 1929 1933	% 1935 1934 = 100	Average = 100
	Thousand acres				
Hay and clover . . . . .	8,750	8,881	9,596	98 5	91 2
Alfalfa . . . . .	671	679	700	98 8	95 9
Fodder maize . . . . .	489	497	386	98 4	126 8
Turnips, etc. . . . .	184	187	187	98 2	98.6

*Egypt:* Weather conditions during June were generally favourable to the ripening and cutting of *berسيم* (Alexandria clover). Cutting is finished in fields where irrigation ceased before 10 May. The yield is normal. The other crops of Lower Egypt have suffered seriously from cotton worm and the total crop will consequently be much smaller.

*French Morocco:* The greening of grazing lands which occurred after the rains of the end of May was of short duration owing to the subsequent drought. Animals are being fed on the stubble and have kept in fairly good condition.

## LIVESTOCK AND DERIVATIVES

### Pig Population in Germany.

In the following table are given the results of the intermediate census of pigs in Germany on 4 June with comparative data for the three preceding years and the data for the main censuses at the beginning of December and other intermediate censuses.

# Numbers of pigs in Germany (1)

(thousands).

CLASSIFICATION BY SEX AND AGE	2) 4 June 1935	2) 5 March 1935	5 Dec. 1934	4 Sept. 1934	4 June 1934	5 March 1934	5 Dec. 1933	7 June 1933	3 March 1933	1 Dec. 1932	1 Sept. 1932	1 June 1932	1 March 1932
<i>Totals . . . . .</i>	20,042	20,225	23,170	25,047	22,368	22,010	23,890	21,174	20,238	22,859	24,176	21,289	20,633
<i>Suckling pigs under 8 weeks old. . . . .</i>	4,558	4,920	4,512	6,348	5,283	5,715	5,126	5,139	5,153	4,834	6,326	5,501	5,014
<i>Young pigs from 8 weeks to 6 months old . . . . .</i>	9,530	9,574	10,040	10,594	10,436	10,022	10,353	9,752	9,379	9,884	10,341	9,832	9,976
<i>Pigs from 6 months to 1 year old . . . . .</i>	4,257	3,993	6,326	6,072	4,787	4,440	5,984	4,450	3,966	5,812	5,435	4,109	3,853
<i>Of which:</i>													
Boars for service	68	46	46	42	44	48	49	46	46	49	46	46	47
Sows for breed- ing (total) . . . . .	554	554	452	471	547	561	549	653	528	485	517	607	549
Sows covered . . . . .	(355)	(333)	(244)	(229)	(338)	(327)	(306)	(422)	(316)	(259)	(255)	(374)	(323)
Other swine . . . . .	3,635	3,393	5,828	5,559	4,196	3,831	5,386	3,751	3,392	5,278	4,872	3,456	3,257
<i>Pigs 1 year old and over . . . . .</i>	1,697	1,737	2,272	2,033	1,862	1,833	2,427	1,833	1,741	2,329	2,074	1,847	1,791
<i>Of which:</i>													
Boars for service	57	57	61	72	71	66	62	73	66	61	75	73	67
Sows for breed- ing (total) . . . . .	1,361	1,236	1,328	1,483	1,519	1,433	1,466	1,511	1,381	1,384	1,559	1,534	1,425
Sows covered . . . . .	(866)	(724)	(822)	(768)	(949)	(841)	(923)	(978)	(832)	(851)	(832)	(938)	(875)
Other swine . . . . .	279	444	883	478	272	334	899	249	294	884	440	240	299

1) Excluding the Saar territory. — 2) Excluding pigs in towns with more than 100,000 inhabitants.

## Sheep Population in Germany <sup>1)</sup>.

The following table gives the results of a census of sheep carried out in Germany on 4 June 1935. In making a comparison with the results of the census of 5 December 1934 account should be taken of the fact that normally the numbers in summer are higher than at the beginning of December, when part of the animals are already slaughtered.

Classification	4 June 1935	5 Decembre 1934
<i>Total . . . . .</i>	4,540,277	3,482,605
<i>Sheep under 1 year . . . . .</i>	1,787,162	1,083,781
<i>Sheep 1 year and over . . . . .</i>	2,753,115	2,398,824
<i>of which:</i>		
rams and wethers . . . . .	371,784	248,648
ewes . . . . .	2,381,331	2,150,176

1) Excluding the Saar territory.

**Livestock in Switzerland.**

The special census of cattle and pigs on 20 April 1935 gave the following results:

*Cattle.*

Classification	1935	1934	1933	1932
<b>Calves not over 6 months:</b>				
for slaughter . . . . .	64,843	69,941	61,879	57,032
for rearing . . . . .	178,482	187,248	184,512	225,493
Young cattle from 6 months to 1 year . . . . .	97,058	101,345	111,226	108,277
<b>Heifers:</b>				
from 1 to 2 years . . . . .	187,437	200,167	215,380	188,641
over 2 years. . . . .	111,583	126,824	127,722	103,114
Cows . . . . .	903,007	920,777	912,766	868,516
<b>Bulls:</b>				
from 1 to 2 years . . . . .	23,896	21,080	26,120	28,001
over 2 years. . . . .	8,052	8,653	10,998	7,610
<b>Oxen:</b>				
from 1 to 2 years. . . . .	7,744	11,966	19,224	12,331
over 2 years. . . . .	7,905	12,225	13,787	9,495
<b>TOTAL . . .</b>	<b>1,590,007</b>	<b>1,660,226</b>	<b>1,683,932</b>	<b>1,609,410</b>

The herd, now numbering 1,590,000, shows with respect to the 1934 census a heavy decline of 70,200 or 4.2 % and at the same time marked changes in composition. In the cantons of Schaffhausen, Neuchâtel and Argovie the greatest reduction has occurred, while in canton Luzern the herd remains stationary. This reduction has been possible only by the operation of several factors. In the first place a reduction had been expected as last year there had been recorded large decreases in the categories of young cattle for rearing (calves for rearing and young rearing stock of six months to one year). This decrease would not, however, have attained the proportions noted had not energetic official measures been taken to assist the export of 20,000 head nor the utilization of old cows by preserved meat and meat extract factories been subsidized and action taken to facilitate the sale of fat calves. Finally, a third and very important factor was the drought at the beginning of last summer, which forced many farmers in the areas most severely affected to

liquidate an unusual proportion of their cattle resources in consequence of the poor yields of meadows (for Schaffhausen the decrease was 10.2 %).

Not only the total herd of Switzerland but all the categories enumerated, except young bulls, were affected by the decline. Of all categories of cattle for the market, cows have undergone relatively the smallest decrease in numbers, amounting only to 17,800 or 1.9 % of last year's total. In some cantons (Schwyz, Obwalden and Nidwalden) there has even been a slight increase in the number of cows. Numbering 903,000, cows still show an unusually high figure. As the number of heifers of over two years has been above average since the last census there was not to be expected any appreciable decline in that of cows this year.

Despite the certainly considerable reduction in the number of heifers over two years, a reduction amounting to 15,200 head or 12.0 %, their number, 111,583, is still somewhat larger than would be necessary to ensure the renewal of the normal dairy herd.

If it is possible to continue some degree of regulation of the rearing of young cattle and if no further difficulty in marketing or unfavourable conditions of fodder supply intervene, the present figures of young cattle for rearing and of cattle for slaughter, heavily reduced both absolutely and in relation to the other categories, mean that the lightening that has just begun to be felt may still be continued for a fairly long time. Thus there are possibilities of lightening the milk market for a considerable time and of normally developing the sales of both cattle for market and cattle for rearing.

The firmer prices on the market for cattle, whether for sale or for rearing, will be noticed earlier – probably already in the course of the autumn markets – than will be possible for the lightening of the milk market to be felt. Close observation of the changes in numbers of calves for rearing remains necessary since the number of cows and consequently that of calves to be born, is still very high. Too rapid an expansion of calf-rearing during the coming winter would in two or three years put an end to the more healthy position now in sight.

### *Pigs.*

Classification	1935	1934	1933	1931
Sucking pigs up to 2 months . . . . .	269,558	261,922	236,890	247,012
Young pigs from 2 to 6 months . . . . .	435,510	381,374	328,432	349,228
Pigs for fattening over 6 months . . . . .	288,332	260,494	247,028	237,376
<b>Sows:</b>				
total . . . . .	90,812	94,953	81,379	89,303
in farrow . . . . .	(56,417)	—	—	—
<b>Boars . . . . .</b>	<b>4,120</b>	<b>4,117</b>	<b>3,720</b>	<b>3,503</b>
<b>TOTAL . . .</b>	<b>1,088,338</b>	<b>1,002,800</b>	<b>897,449</b>	<b>926,422</b>

The number of pigs exceeds by 85,500 or 8.5 % the level of one year ago and is now 1,088,000, the maximum so far attained at this season. The changes in composition vary, however, in amount and significance with district. In the regions specialized on pig-rearing (Appenzell, Schaffhausen), where the sale of young animals is general practice, prices, which have been inadequate ever since the autumn of 1934, have brought a decline in numbers. On the other hand, in regions where special attention is paid to fattening the sties are still full. A noticeably large increase has occurred in canton Ticino (33.7 %). Basel and Valais also show very appreciable increases.

There are 288,300 pigs of over six months for fattening, that is, 27,800 or 10.7 % more than last year. But it is in the category of young pigs of two to six months that the increase is greatest; with 435,500 head, they are 54,100 or 14.2 % more than in 1934, young pigs of not more than two months remain at the level of 269,500; the small increase of 7,600 or 2.9 % allows it to be concluded that the reduction in numbers is about to begin.

As for Switzerland as a whole the number of pigs for fattening has increased less than that of young pigs, it may be assumed that last summer there was a slight limitation of rearing and that since then there has in certain areas been a further expansion. Of course, other factors have had an influence on these variations (the low mortality of young pigs at the beginning of winter, shortening of the period of control, etc.). Though errors in enumeration are possible when it is a matter of delimiting pigs between two and six months for fat pigs, certain changes registered in large cantons such as Bern that show a larger increase for the older categories do not correspond to what is observed for the country as a whole.

The structure of the pig population here outlined would indicate that the pig market will be abundantly supplied throughout the summer. It is possible that production will undergo certain further increases. The conditions for a revival in prices do not yet exist. The regressive tendencies in pig rearing are apparent in the change in numbers of sows, which, though still very high, has decreased by 4,100 or 4.4 %. Some cantons, however, show numbers higher than in 1934. Of the total of 90,800 sows 56,420 have recently been covered and a good proportion of these are in farrow. The 34,400 other sows includes all that have recently farrowed.

The pig market, with its large supplies, partially compensates for the lightening of the market for slaughter cattle. This fact alone largely influences price formation, that is to say, the prices of cattle cannot be modified as much as is made possible by numbers if pig-breeding remains at its normal level. Inversely the fact that the supply of large cattle has diminished will attenuate the competition to be met by pork.

## Livestock in Belgium.

In the following table are given the numbers of livestock in Belgium on 31 December 1934 compared with a series of preceding years and the pre-war period :

YEAR	Horses 1)			Cattle				Pigs			
	under 3 years of age	over 3 years of age	Total	under 2 years of age	dairy cows	other cattle over 2 years of age	Total	under 6 months of age	over 6 months of age	of which store pigs (fattening)	Total
1934 . . .	91,199	140,600	231,799	762,334	963,030	114,317	1,839,681	688,684	569,174	422,485	1,257,858
1933 . . .	91,442	141,847	233,289	760,609	946,515	105,483	1,812,607	729,168	623,358	461,345	1,352,526
1932 . . .	95,079	142,933	238,012	745,752	941,814	96,880	1,784,446	679,424	565,230	421,322	1,244,654
1931 . . .	96,663	145,326	241,989	738,740	930,930	97,866	1,767,536	672,902	562,312	420,114	1,235,214
1930 . . .	98,184	147,787	245,971	732,437	925,556	100,661	1,758,654	680,867	568,754	424,066	1,249,621
1929 . . .	99,564	149,450	249,014	727,208	911,720	99,420	1,738,348	675,374	561,628	421,252	1,237,002
1928 . . .	103,392	149,922	253,314	743,651	907,730	99,160	1,750,541	621,362	517,769	385,020	1,139,131
1927 . . .	101,978	154,847	256,465	735,462	901,902	101,450	1,738,814	609,824	514,419	381,347	1,124,243
1926 . . .	100,356	149,931	250,287	719,083	891,786	100,833	1,711,702	626,730	517,130	386,564	1,143,860
1925 . . .	100,721	149,303	250,024	696,277	856,352	102,138	1,654,767	625,541	526,178	393,674	1,151,719
1913 . . .	95,472	171,688	267,160	779,950	936,800	132,734	1,849,484	746,674	665,619	—	1,412,293

1) Horses employed in agriculture

## Current information on livestock and derivatives.

*Belgium:* Health of stock has remained good. Animals at pasture have found abundant feed.

*Irish Free State:* During June pastures afforded ample keep for stock of all kinds and there was scarcely any concentrated food required.

The milk yield was well above the average for the season.

*Great Britain and Northern Ireland:* With the improvement in grass, supplies of feeding stuffs became ample. Milk yields are up to the average

In Northern Ireland cattle of all descriptions made a good thrive in June as a result of the improved pasture lands. Dairy cattle are in good, healthy condition and the milk yield showed a further seasonal increase.

*Netherlands:* Feeding for dairy cows was plentiful. Compared with the figures for last year, milk production in Zeeland hardly differed from the normal while in Limburg it was 5 % less. In Friesland production increased from 3 to 4 %, in Groningen and Geldern by 3 to 4 %, in North Brabant by 3 to 5 % and in other provinces by 5 to 10 %.

*Union of South Africa.* Good rains and scattered showers fell in May in parts of the Transvaal, but in many districts of the Low-veld and Eastern High-veld the conditions were very dry and farmers were compelled to trek with their stock.

Very cold weather was also experienced during the month and snow fell in many districts.

With the exception of the Transvaal, grazing in the various parts of the Union was plentiful as a result of the general rains and stock on the whole were in good condition. Very little sickness amongst stock was reported, although in one or two districts some losses from wireworm and other diseases had been suffered, and outbreaks of East Coast fever were reported from districts of the Transvaal Eastern High-veld. Conditions for the lambing season generally remained favourable and lambs on the whole were reported to be doing well.

## TRADE

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat. — Thousand cents (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	220	110	0	0	220	1,997	0	0	2,242	0
Hungary	675	860	0	0	5,937	14,740	0	0	15,496	0
Lithuania	55	0	0	0	573	0	0	0	0	0
Poland	64	196	0	0	485	540	9	507	1,596	507
Romania	952	0	0	2	1,096	141	4	11	141	11
Yugoslavia	134	0	0	0	2,434	311	2	0	553	0
U. S. S. R.	—	—	—	—	1,179	15,781	—	—	19,271	—
Canada	7,194	11,416	0	0	77,235	83,115	2	7	101,960	7
United States	4	877	1,102	604	1,378	11,034	13,724	5,785	11,995	6,757
Argentina	9,372	8,186	—	—	91,362	65,374	—	—	84,074	—
Chile	13	18	225	0	653	254	395	765	582	765
Syria and Lebanon	9	2	0	20	225	408	15	183	423	198
Algeria	498	168	46	9	6,197	5,633	284	240	6,493	340
French Morocco	—	—	—	—	2,423	3,435	—	—	5,082	0
Tunisia	152	7	2	7	1,307	600	181	1,107	1,124	1,122
Australia	3,933	2,066	0	0	40,268	29,183	0	0	36,090	0
New Zealand	—	—	—	—	0	181	13	84	181	119
<i>Importing Countries:</i>										
Germany	2	558	304	1,250	119	11,310	6,704	13,442	12,516	17,163
Austria	0	0	485	708	0	0	3,640	3,889	0	4,866
Belgium	31	231	1,495	2,150	1,572	1,210	21,636	22,838	1,459	26,226
Denmark	0	0	589	525	31	9	9,661	5,553	9	6,764
Spain	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	93	0	0	0	0	0
Irish Free State	0	0	1,100	1,003	0	0	7,939	8,468	0	10,280
Finland	0	0	203	119	0	0	1,012	875	0	1,098
France	3,153	0	1,177	818	17,789	1,327	12,774	14,059	1,905	16,493
Gr. Brit. and N. Irel.	88	170	11,779	10,479	657	644	93,889	100,159	754	120,064
Greece	0	0	1,402	516	0	0	6,535	5,573	0	6,285
Italy	0	0	778	1,001	9	7	8,272	8,439	7	9,908
Latvia	—	—	—	—	79	1	0	0	0	0
Norway	0	0	461	519	0	0	3,159	3,018	0	3,761
Netherlands	304	165	1,008	1,076	428	1,032	9,722	11,502	1,303	13,649
Portugal	—	—	22	35	—	—	163	317	—	384
Sweden	395	0	68	84	1,248	2	807	963	375	1,089
Switzerland	0	0	873	794	2	7	8,322	8,613	7	10,558
Czechoslovakia	0	0	57	0	2	4	635	86	4	9
Ceylon	—	—	4	0	—	—	22	7	—	8
China	15	22	1,841	2,487	265	128	8,858	10,637	185	11,200
India	4	2	0	0	240	0	101	99	—	165
Japan	—	—	—	—	—	—	8,360	7,491	—	9,811
Egypt	—	—	—	—	51	9	1,257	4	9	7
Union of South Afr.	—	—	—	—	2	0	520	22	0	33
<b>Totals</b>	<b>27,267</b>	<b>25,054</b>	<b>25,021</b>	<b>24,206</b>	<b>255,559</b>	<b>248,456</b>	<b>228,617</b>	<b>234,743</b>	<b>305,880</b>	<b>279,727</b>
<b>Rye. — Thousand cents (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	0	289	511	31	51	6,473	4,883	2,163	6,945	2,196
Bulgaria	0	0	0	0	0	18	0	0	18	0
Estonia	0	0	0	0	494	0	22	0	0	0
Hungary	60	126	0	0	705	3,100	0	0	3,455	0
Latvia	—	—	—	—	1,898	0	0	0	0	0
Lithuania	82	0	0	0	1,184	49	0	0	49	0
Poland	1,027	648	0	0	10,124	8,680	0	229	10,479	229
Romania	0	0	0	0	0	0	0	0	0	0
Sweden	93	0	2	4	1,847	0	20	29	42	31
U. S. S. R.	—	—	—	—	547	1,656	—	—	3,397	—
Canada	9	9	0	0	403	1,435	11	0	1,444	0
Argentina	139	176	—	—	5,267	1,828	—	—	2,178	—
Algeria	0	0	0	0	24	15	0	0	22	0
<i>Importing Countries:</i>										
Austria	0	0	121	29	0	0	1,198	33	0	172
Belgium	0	0	322	315	9	11	1,543	4,572	11	4,804
Denmark	2	0	397	359	4	0	3,536	5,293	0	5,895
Finland	0	0	33	146	0	0	143	930	0	1,173
France	0	0	0	0	2	0	31	71	0	71
Italy	0	0	22	13	0	0	152	93	0	126
Norway	0	0	231	267	0	0	2,026	2,502	0	3,201
Netherlands	0	0	128	297	227	7	1,545	4,392	7	5,110
Switzerland	0	0	15	7	0	0	126	115	0	137
Czechoslovakia	0	0	0	2	4	15	15	15	18	20
United States	0	0	1,279	320	0	9	5,269	5,333	9	7,055
<b>Total</b>	<b>1,412</b>	<b>1,248</b>	<b>3,061</b>	<b>2,090</b>	<b>22,790</b>	<b>23,296</b>	<b>21,020</b>	<b>25,770</b>	<b>28,074</b>	<b>30,220</b>



COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat flour. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	11	335	0	0	586	4,594	73	49	5,578	55
Bulgaria	0	4	0	0	0	88	0	0	93	0
Spain	0	0	0	0	0	29	0	0	31	0
France	293	359	119	90	3,790	3,563	1,354	758	4,149	937
Hungary	93	150	0	0	668	1,303	0	0	1,466	0
Italy	172	278	7	15	3,322	3,115	88	291	3,849	320
Lithuania	0	0	0	0	0	22	0	0	22	0
Poland	101	37	0	0	437	245	0	0	282	0
Romania	0	0	0	0	0	7	0	0	7	0
Yugoslavia	4	4	0	0	35	49	0	0	55	0
Canada	752	944	55	9	7,594	9,028	342	90	10,690	176
United States	593	529	0	0	6,656	6,594	2	2	7,584	2
Argentina	137	154	—	—	1,786	2,002	—	—	2,425	—
Chile	2	9	7	4	44	22	51	42	22	55
India	24	11	0	0	243	223	4	2	260	2
Japan	...	...	...	...	1) 5,467	1) 4,339	1) 20	1) 20	5,569	22
Algeria	64	84	9	11	820	721	88	84	897	101
French Morocco	...	...	...	...	2) 29	2) 49	2) 0	2) 7	49	9
Tunisia	42	15	0	46	549	163	60	234	223	249
Australia	1,221	915	0	0	12,028	9,209	2	0	10,922	0
<i>Importing Countries:</i>										
Austria	0	0	99	148	2	0	586	769	0	992
Belgium	2	4	7	11	33	37	143	265	42	287
Denmark	2	2	26	37	15	11	406	481	13	584
Estonia	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	13	42	0	0	472	983	0	1,091
Finland	0	0	75	115	0	0	699	924	0	1,146
Gr. Brit. and N. Irel.	337	333	725	959	2,879	2,734	7,542	9,621	3,245	11,674
Greece	0	0	2	0	0	2	26	11	2	13
Norway	0	0	71	112	2	4	785	763	4	930
Netherlands	0	0	88	75	9	4	747	767	7	880
Portugal	—	—	11	15	—	—	115	119	—	143
Sweden	0	0	0	0	0	0	2	4	0	4
Czechoslovakia	0	0	0	2	—	7	15	20	—	7
Ceylon	—	—	31	37	—	—	346	342	—	386
China	0	2	90	60	57	88	1,318	1,184	165	1,314
Indo-China	—	—	...	...	—	1)	293	1)	254	337
Java and Madura	—	—	...	...	—	1)	919	1)	831	1,087
Syria and Lebanon	2	2	2	119	53	71	77	765	77	888
Egypt	...	...	...	...	1) 0	1) 0	1) 60	1) 75	0	99
Union of South Afr.	...	...	...	...	2) 0	2) 0	2) 19	2) 7	2	9
New Zealand	...	...	...	...	2) 2	2) 2	159	2) 157	2	209
<b>Totals</b>	<b>3,852</b>	<b>4,171</b>	<b>1,437</b>	<b>1,907</b>	<b>47,210</b>	<b>48,316</b>	<b>16,803</b>	<b>19,921</b>	<b>57,739</b>	<b>24,023</b>
<b>Barley. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	0	15	0	0	0	522	0	0	522	0
Spain	0	0	0	0	0	44	0	0	44	0
Hungary	0	22	0	0	88	1,065	24	0	1,093	0
Lithuania	11	0	0	0	165	0	0	0	0	0
Poland	159	172	0	0	6,693	3,223	0	0	3,538	0
Romania	196	414	0	0	3,876	13,470	0	4	14,654	0
Czechoslovakia	40	26	0	0	1,058	1,105	2	2	1,116	2
Yugoslavia	15	0	0	0	538	163	0	0	176	0
U. S. S. R.	...	...	—	—	4) 2,705	4) 9,493	—	—	10,796	—
Canada	664	35	0	0	6,235	520	0	0	820	0
United States	37	181	567	0	1,839	2,412	5,033	13	2,531	152
Argentina	620	1,281	—	—	8,472	9,767	—	—	11,605	—
Chile	42	311	0	0	1,195	1,254	0	0	2,006	0
India	15	0	0	0	392	2	9	88	2	95
Algeria	11	51	88	4	1,138	1,102	719	452	1,144	496
Egypt	...	...	...	...	1) 0	1) 139	1) 15	1) 0	139	0
French Morocco	...	...	...	...	2) 4,881	2) 1,812	2) 0	2) 0	2,628	0
Australia	13	40	0	0	1,314	1,232	0	0	1,407	0
<i>Importing Countries:</i>										
Germany	0	0	397	805	0	2	10,049	6,367	2	7,648
Austria	0	0	46	304	0	0	1,411	2,108	0	2,588
Belgium	26	33	414	423	386	489	7,793	8,047	655	8,962
Denmark	7	9	66	79	1,396	869	833	1,111	977	1,314
Irish Free State	0	0	88	4	4	11	256	77	11	212
France	0	0	245	163	2	0	3,530	3,358	0	3,915
Gr. Brit. and N. Irel.	0	0	666	899	9	20	12,222	18,221	26	20,322
Greece	0	0	15	0	0	0	64	4	0	4
Italy	0	0	115	128	0	0	1,614	979	0	1,124
Norway	0	0	9	2	2	0	152	287	0	293
Netherlands	4	2	386	776	194	26	5,353	10,252	26	11,543
Switzerland	0	0	203	258	0	0	2,407	1,958	0	2,412
Syria and Lebanon	0	11	0	0	112	88	37	209	79	216
Tunisia	33	4	0	13	62	66	1,008	571	84	602
<b>Totals</b>	<b>1,897</b>	<b>2,607</b>	<b>3,305</b>	<b>3,856</b>	<b>42,756</b>	<b>48,896</b>	<b>52,531</b>	<b>54,108</b>	<b>56,081</b>	<b>61,904</b>

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Oats. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Irish Free State	0	0	0	0	0	20	0	0	20	0
Hungary	0	7	0	0	0	761	0	0	761	0
Lithuania	26	0	0	0	203	2	0	0	2	0
Poland	77	97	0	0	873	192	0	0	304	0
Romania	55	0	0	0	55	505	0	0	505	0
Czechoslovakia	0	64	0	0	2	703	2	0	741	0
Yugoslavia	37	4	0	0	260	44	0	0	112	0
Canada	542	300	0	0	4,101	1,554	0	2	2,070	2
United States	4	2	359	0	35	115	4,685	20	123	71
Argentina	498	617	—	—	12,412	5,681	—	—	7,053	—
Chile	95	119	0	0	1,047	897	0	0	1,530	0
Tunisia	20	0	0	2	368	22	0	22	86	22
Australia	18	7	0	0	256	29	2	0	33	2
<i>Importing Countries:</i>										
Germany	0	18	553	2	13	1,925	4,429	90	1,931	97
Austria	0	0	53	66	0	0	159	218	0	450
Belgium	0	0	51	60	0	0	207	148	0	390
Denmark	0	0	37	44	657	26	752	322	26	373
Estonia	0	0	0	0	15	0	0	0	0	0
Finland	0	0	0	46	2	9	11	461	9	549
France	0	79	24	0	31	161	333	196	179	238
Gr. Brit. and N. Irel.	2	2	276	214	15	18	2,498	4,418	20	4,894
Italy	0	0	154	280	0	0	4,173	2,282	0	2,811
Latvia	...	...	...	...	1)	0	1)	0	2	2
Norway	0	0	0	0	0	4	4	2	4	2
Netherlands	2	0	68	141	11	20	608	952	20	1,142
Sweden	0	0	0	57	37	9	24	864	9	915
Switzerland	0	0	309	317	0	0	3,814	3,971	0	4,780
Algeria	0	0	26	64	123	51	121	256	64	282
<b>Totals</b>	<b>1,376</b>	<b>1,316</b>	<b>1,910</b>	<b>1,293</b>	<b>20,525</b>	<b>12,748</b>	<b>21,822</b>	<b>14,226</b>	<b>15,602</b>	<b>17,022</b>

**Maize. — Thousand centals (1 cental = 100 lb.).**

COUNTRIES					SEVEN MONTHS (November 1-May 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<i>Exporting Countries:</i>										
Bulgaria	0	518	0	0	399	1,717	0	0	2,564	0
Hungary	18	55	170	0	0	833	262	0	1,056	0
Romania	884	679	0	0	5,966	7,383	0	0	10,115	2
Yugoslavia	794	800	0	0	9,220	6,896	0	0	11,810	2
United States	4	185	1,700	9	216	1,464	7,352	66	2,401	763
Argentina	17,377	10,979	—	—	67,382	70,588	—	—	127,357	—
Java and Madura	...	...	—	—	1,091	882	—	—	924	—
Indo-China	...	...	—	—	1)	4,605	1)	2,564	8,439	—
Syria and Lebanon	0	0	0	33	0	0	7	64	0	66
Egypt	...	...	...	...	1)	0	1)	2	18	20
Union of South Afr.	752	0	...	...	5,664	0	2)	0	342	432
<i>Importing Countries:</i>										
Germany	0	0	593	395	0	0	5,937	3,534	0	7,452
Austria	0	0	747	1,023	0	2	6,548	6,493	2	10,448
Belgium	46	20	1,354	1,512	454	348	8,413	8,766	822	16,824
Denmark	0	0	181	179	0	0	2,055	2,130	0	4,586
Spain	0	0	0	4	0	0	423	745	0	1,916
Irish Free State	0	0	814	163	0	0	3,230	2,793	0	6,543
Finland	0	0	18	99	0	0	258	1,065	0	1,312
France	4	0	626	829	7	18	9,875	8,717	22	13,607
Gr. Brit. and N. Irel.	216	134	5,234	5,053	1,228	939	33,784	37,721	2,116	66,597
Greece	0	0	163	2	0	0	648	29	0	37
Italy	0	0	141	192	2	2	1,140	1,290	2	3,874
Norway	0	0	176	66	0	0	1,146	1,647	0	3,084
Netherlands	0	0	1,393	1,735	0	9	11,471	13,766	13	22,011
Poland	0	0	0	7	0	0	0	57	0	60
Portugal	—	—	29	53	—	—	430	787	—	1,669
Sweden	0	0	18	201	0	0	280	2,590	0	3,106
Switzerland	0	0	86	68	0	0	983	1,027	0	1,792
Czechoslovakia	0	0	174	507	0	0	1,581	2,527	0	5,150
Canada	0	0	489	324	2	0	2,441	2,108	2	4,090
Japan	—	—	...	...	—	—	1)	4	2	2
Tunisia	0	0	0	9	0	0	55	101	4	101
<b>Totals</b>	<b>20,095</b>	<b>13,370</b>	<b>14,106</b>	<b>12,463</b>	<b>96,366</b>	<b>93,647</b>	<b>98,341</b>	<b>98,378</b>	<b>171,344</b>	<b>175,546</b>

1) 2) See notes page 554.

COUNTRIES	MAY				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Rice. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Spain	24	33	0	0	368	163	0	0	1,010	0
Italy	126	115	4	2	1,268	1,243	35	13	3,598	44
United States	291	44	11	55	589	456	401	196	917	558
Brazil	...	...	...	...	282	130	...	...	734	...
India	5,679	5,148	251	459	23,387	18,437	1,784	2,659	31,244	8,858
Indo-China	...	...	...	...	17,474	10,459	2	2	28,462	...
Siam	2,410	3,673	...	...	15,836	16,649	...	...	43,202	...
Egypt	...	...	...	...	381	855	13	2	1,508	9
<i>Importing Countries:</i>										
Germany	49	60	351	505	168	194	1,614	2,015	745	6,341
Austria	0	0	53	60	0	0	278	269	0	633
Belgium	2	7	53	132	18	49	342	578	97	1,446
Denmark	0	0	4	7	0	0	44	46	0	137
Estonia	...	...	0	2	...	...	...	7	...	15
Irish Free State	0	0	4	13	0	0	20	33	0	57
France	33	73	831	1,283	324	373	4,442	5,245	661	14,171
Gr. Brit. and N. Irel.	24	13	571	483	86	64	1,398	1,373	174	2,862
Greece	0	0	46	53	0	0	240	212	0	313
Hungary	0	0	11	9	0	0	130	172	0	448
Latvia	...	...	...	...	0	0	2	4	0	11
Lithuania	0	0	0	0	0	0	0	7	0	15
Norway	0	0	15	9	0	0	49	42	0	106
Netherlands	203	183	635	683	825	648	1,323	1,468	2,013	3,629
Poland	18	22	287	170	37	55	324	335	157	974
Portugal	...	...	35	49	...	...	112	240	...	575
Sweden	...	...	119	22	...	...	159	24	...	223
Switzerland	0	0	31	24	0	0	185	152	0	397
Czechoslovakia	0	0	132	134	0	0	419	357	0	1,497
Yugoslavia	0	0	37	40	0	0	174	161	0	439
Canada	0	2	95	183	2	2	245	395	4	732
Chile	...	...	29	22	...	...	97	108	...	340
Ceylon	0	0	1,129	882	2	2	5,284	4,546	4	10,977
China	2	31	5,906	1,700	53	121	21,096	7,399	150	17,000
Java and Madura	...	...	...	...	2	35	2,416	53	132	1,356
Japan	...	...	...	...	386	624	77	53	1,457	152
Syria and Lebanon	0	0	31	64	0	0	159	216	0	428
Algeria	0	2	11	37	2	4	82	271	9	355
Tunisia	0	0	0	9	0	0	20	37	0	57
Union of South Afr.	...	...	...	...	0	0	220	234	0	1,184
Australia	18	29	4	2	84	88	24	31	244	49
New Zealand	...	...	...	...	0	0	18	18	0	73
<b>Totals</b>	<b>8,879</b>	<b>9,435</b>	<b>10,686</b>	<b>7,093</b>	<b>61,574</b>	<b>50,651</b>	<b>43,234</b>	<b>28,973</b>	<b>116,522</b>	<b>76,462</b>
<b>Linseed. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Lithuania	2	2	0	0	77	46	0	0	141	0
Argentina	3,706	1,570	...	...	20,078	15,640	...	...	30,300	...
India	686	410	0	0	1,034	2,207	0	0	6,175	0
Tunisia	0	0	0	0	0	0	0	0	0	2
<i>Importing Countries:</i>										
Germany	0	0	540	904	0	0	2,449	4,006	2	6,986
Belgium	18	2	93	64	82	42	1,173	924	68	1,790
Denmark	...	...	53	64	...	...	278	165	...	359
Spain	...	...	20	11	...	...	163	123	...	366
Estonia	0	0	2	2	2	2	4	4	15	4
Finland	0	0	7	15	0	0	42	64	0	104
France	0	0	582	498	2	4	2,725	2,851	7	5,243
Gr. Brit. and N. Irel.	0	0	359	353	2	2	2,306	2,288	15	4,123
Greece	0	0	13	9	0	0	35	40	0	112
Hungary	0	0	0	0	4	2	0	0	13	0
Italy	0	0	157	115	0	0	661	556	0	1,422
Latvia	...	...	...	...	48	26	42	29	79	86
Norway	0	0	68	62	0	0	278	225	0	337
Netherlands	0	4	730	542	53	49	5,020	3,040	77	7,108
Poland	0	0	0	68	0	0	0	71	0	170
Sweden	...	...	88	143	...	...	392	472	...	849
Czechoslovakia	0	0	117	51	0	0	326	280	0	556
Yugoslavia	0	0	51	7	0	0	115	84	0	139
Canada	0	0	150	163	4	2	231	209	4	443
United States	...	...	761	917	...	...	4,063	3,933	...	7,934
Japan	...	...	...	...	2	2	126	196	2	434
Australia	0	0	117	11	0	0	359	174	0	560
<b>Totals</b>	<b>4,412</b>	<b>1,986</b>	<b>3,908</b>	<b>3,999</b>	<b>21,368</b>	<b>18,024</b>	<b>20,788</b>	<b>19,736</b>	<b>36,898</b>	<b>39,127</b>

COUNTRIES	MAY				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Butter. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Austria	719	15	2	134	1,836	1,585	7	146	7,053	157
Denmark	27,496	35,107	95	2	122,474	140,087	126	7	330,311	20
Estonia	1,986	1,841	0	0	6,768	5,983	0	0	22,306	0
Irish Free State	8,281	6,334	0	0	11,872	10,686	4	57	56,886	84
Finland	1,691	2,765	0	0	10,093	10,567	0	0	24,467	13
Hungary	518	207	0	0	1,717	3,062	0	0	8,790	0
Latvia	—	—	—	—	1,153	7,972	1	1	34,615	0
Lithuania	2,088	2,293	0	0	6,257	5,591	0	0	21,321	0
Norway	0	2	0	0	247	344	0	2	547	2
Netherlands	14,617	12,174	2	84	42,208	34,599	220	187	81,320	1,173
Poland	15	381	0	0	635	1,378	2	0	9,782	9
Sweden	4,896	4,200	0	0	19,668	20,274	2	2	51,152	4
U. S. S. R.	—	—	—	—	—	—	—	—	83,562	—
Argentina	470	666	—	—	9,453	8,305	—	—	18,347	—
India	18	22	60	49	84	86	313	240	209	642
Syria and Lebanon	77	20	22	49	176	57	150	317	293	809
Australia	14,090	20,801	0	0	144,760	121,711	2	0	246,784	2
New Zealand	22,558	21,929	—	—	142,285	143,711	—	—	292,830	—
<i>Importing Countries:</i>										
Germany	2	0	11,045	9,288	4	4	70,352	41,399	9	136,165
Belgium	2	13	450	853	22	46	7,315	10,346	108	20,629
Spain	7	2	0	82	11	4	62	90	15	143
France	884	650	128	269	3,217	2,668	542	8,636	7,297	9,603
Gr. Brit. and N. Irel.	708	661	107,368	111,250	10,382	7,205	469,787	488,046	12,635	1,086,713
Greece	—	—	66	33	—	—	293	130	—	690
Italy	26	60	55	179	126	141	470	2,709	276	3,799
Switzerland	0	0	15	22	2	0	71	589	0	653
Czechoslovakia	0	0	511	747	0	22	1,541	937	22	2,229
Canada	24	31	9	37	174	119	35	2,776	428	2,873
United States	60	117	2,665	53	295	732	20,449	271	1,321	1,107
Ceylon	—	—	119	66	—	—	417	328	—	681
Java and Madura	—	—	—	—	—	—	3,759	4,275	—	10,313
Japan	—	—	—	—	—	—	9	22	—	64
Algeria	2	0	597	425	7	2	2,002	1,854	7	4,791
Egypt	—	—	—	—	93	35	364	231	82	789
Tunisia	0	—	75	141	9	2	1,003	994	22	2,114
<b>Totals</b>	<b>101,235</b>	<b>110,291</b>	<b>123,282</b>	<b>123,765</b>	<b>543,028</b>	<b>526,978</b>	<b>578,897</b>	<b>564,591</b>	<b>1,312,797</b>	<b>1,286,271</b>
<b>Cheese. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	99	73	0	0	1,305	342	0	0	2,652	0
Denmark	1,093	1,049	9	2	5,395	5,549	18	18	13,891	73
Finland	642	648	0	0	3,708	2,648	4	9	8,523	40
Italy	4,855	4,361	948	840	23,413	22,428	4,162	3,743	55,283	10,190
Lithuania	37	141	0	0	445	765	0	0	2,200	2
Norway	256	298	18	15	1,193	1,473	106	73	4,418	214
Netherlands	11,931	11,945	49	77	51,270	52,256	300	381	134,892	1,455
Poland	0	443	37	62	500	944	130	267	3,926	531
Switzerland	3,448	3,369	353	388	15,404	15,532	1,453	2,227	39,143	5,353
Czechoslovakia	207	243	212	179	608	611	955	1,016	1,995	2,628
Yugoslavia	220	207	7	2	692	608	24	22	4,045	57
Canada	1,204	972	168	148	2,418	3,067	434	379	61,167	946
Australia	717	370	7	4	8,505	4,286	20	24	12,467	77
New Zealand	21,010	19,917	—	—	101,340	110,432	1	0	222,266	2
<i>Importing Countries:</i>										
Germany	44	119	5,273	6,654	384	836	24,855	29,498	2,114	74,488
Austria	454	247	254	251	3,349	1,248	787	800	3,860	1,720
Belgium	20	49	4,103	3,810	93	157	19,176	17,716	353	47,818
Spain	15	20	243	207	49	68	988	902	123	2,482
Irish Free State	20	4	7	11	115	66	33	29	514	64
France	2,357	2,244	2,908	3,179	11,277	11,568	14,738	12,555	25,973	35,173
Gr. Brit. and N. Irel.	463	485	25,381	28,916	2,258	2,235	138,493	147,236	5,968	334,718
Greece	0	79	117	42	126	688	686	88	1,144	295
Hungary	62	2	0	0	90	42	2	0	176	0
Portugal	—	—	37	20	—	—	150	110	—	525
Sweden	—	—	79	73	—	—	507	445	—	1,248
United States	110	95	3,735	3,935	547	591	20,069	19,092	1,512	47,532
India	0	0	88	86	0	2	487	392	2	1,135
Java and Madura	—	—	—	—	—	—	522	514	—	1,656
Syria and Lebanon	117	71	66	77	214	110	461	505	534	1,221
Algeria	18	11	1,129	1,768	71	49	5,031	5,406	117	11,288
Egypt	—	—	—	—	26	26	1,779	1,779	126	6,537
Tunisia	4	18	313	218	20	60	1,202	1,228	86	2,959
<b>Totals</b>	<b>49,403</b>	<b>47,480</b>	<b>45,541</b>	<b>50,964</b>	<b>236,815</b>	<b>238,687</b>	<b>238,152</b>	<b>246,454</b>	<b>609,470</b>	<b>592,427</b>

1) See notes page 554.



COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Cotton. — Thousand cents (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
United States . . . . .	1,614	1,556	53	75	23,019	36,738	470	644	40,971	747
Argentina . . . . .	82	51	—	—	463	254	—	—	450	—
Brazil . . . . .	—	—	—	—	2,760	692	—	—	1,305	—
India . . . . .	1,812	1,742	278	110	10,794	10,077	1,457	765	12,791	972
Egypt . . . . .	—	—	—	—	6,519	7,436	—	—	8,927	—
<i>Importing Countries:</i>										
Germany . . . . .	86	79	597	899	816	1,045	5,148	8,400	1,235	9,539
Austria . . . . .	0	2	64	60	4	2	575	558	2	666
Belgium . . . . .	71	44	176	150	615	467	1,695	1,504	553	1,768
Denmark . . . . .	—	—	15	—	—	—	148	161	—	190
Spain . . . . .	2	2	190	287	46	31	1,757	2,099	35	2,698
Estonia . . . . .	0	0	9	7	0	0	97	73	0	88
Finland . . . . .	0	0	20	29	4	0	256	218	2	249
France . . . . .	31	31	419	399	549	326	4,195	6,486	423	7,101
Gr. Brit. and N. Irel. . . . .	60	51	871	1,030	593	520	9,654	12,441	606	14,266
Greece . . . . .	7	0	20	13	11	0	117	123	0	163
Hungary . . . . .	0	0	51	46	0	0	417	423	0	509
Italy . . . . .	0	0	104	304	2	9	3,139	4,195	7	4,716
Latvia . . . . .	—	—	—	—	—	—	—	—	—	—
Norway . . . . .	0	0	9	7	0	0	55	49	0	53
Netherlands . . . . .	2	0	79	86	4	7	741	833	7	988
Poland . . . . .	0	0	117	121	7	4	1,179	1,299	4	1,519
Portugal . . . . .	—	—	33	53	—	—	386	430	—	498
Sweden . . . . .	—	—	46	46	—	—	525	567	—	661
Switzerland . . . . .	0	0	42	51	0	0	492	509	0	597
Czechoslovakia . . . . .	4	4	137	146	62	71	1,340	1,587	97	1,845
Yugoslavia . . . . .	0	0	24	22	0	0	260	243	0	289
Canada . . . . .	—	—	64	159	—	—	1,067	1,288	—	1,506
China . . . . .	11	31	249	265	362	719	1,351	2,436	847	2,835
Japan . . . . .	—	—	—	—	448	201	13,735	11,656	384	17,163
Algeria . . . . .	0	0	0	0	4	4	11	11	2	11
<b>Totals . . . . .</b>	<b>3,782</b>	<b>3,593</b>	<b>3,667</b>	<b>4,383</b>	<b>47,082</b>	<b>58,601</b>	<b>50,344</b>	<b>59,082</b>	<b>68,648</b>	<b>71,745</b>

**Wool. — (Thousand lb.).**

COUNTRIES	MAY				NINE MONTHS (September 1-May 31)				TWELVE MONTHS (Sept 1-August 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<i>Exporting Countries:</i>										
Irish Free State . . . . .	1,191	392	37	77	9,383	14,070	597	474	16,810	697
Hungary . . . . .	0	0	273	121	1,329	979	2,956	1,638	6,270	2,286
Argentina . . . . . (a)	24,650	19,875	—	—	218,082	238,197	—	—	260,459	—
Chile . . . . . (b)	2,846	1,184	—	—	22,168	13,768	—	—	15,959	—
India . . . . .	950	470	46	0	17,522	25,294	154	0	27,174	4
Syria and Lebanon . . . . .	6,122	2,240	745	659	35,944	46,013	6,116	3,541	54,798	4,072
Algeria . . . . .	545	51	0	2	5,102	3,117	79	306	4,799	324
Egypt . . . . .	306	—	231	284	4,956	6,041	1,629	1,473	9,270	2,350
Un. of S. Africa . . . . . (a)	16,341	15,243	—	—	1,625	1,854	33	42	2,721	57
Australia . . . . . (b)	688	697	—	—	201,106	215,767	20	20	228,426	0
New Zealand . . . . . (a)	58,343	22,503	287	212	6,206	5,419	20	1,065	6,228	1,519
— (b)	9,958	4,495	0	15	729,594	685,219	3,192	6,662	703,392	7,035
— (a)	19,901	18,523	—	—	55,091	55,266	90	317	65,852	342
— (b)	5,430	7,511	—	—	147,488	220,322	101	0	228,155	0
— (a)	—	—	—	—	30,047	34,099	24	9	47,120	15
<i>Importing Countries:</i>										
Germany . . . . . (a)	362	15	41,833	32,371	5,311	1,354	185,742	252,022	2,899	285,918
Austria . . . . . (b)	238	223	6,010	4,405	1,861	5,300	44,686	55,795	5,935	62,340
Belgium . . . . . (a)	13	31	1,515	1,155	1,010	271	13,589	16,828	688	18,045
Denmark . . . . . (b)	11,982	9,059	33,799	14,584	77,513	82,036	167,179	151,632	96,175	173,077
Spain . . . . .	1,909	922	571	236	14,958	21,495	2,873	4,725	24,134	3,463
Finland . . . . .	22	9	529	287	282	170	3,735	4,129	225	5,031
France . . . . .	183	90	1,669	1,162	2,500	3,783	7,467	4,383	4,367	7,132
Gr. Brit. and N. Irel. . . . .	7	0	456	600	218	11	4,037	4,453	42	5,615
Greece . . . . .	4,279	2,465	43,235	34,874	32,737	42,097	262,695	313,523	51,035	374,902
Italy . . . . . (a)	37,100	33,189	118,916	73,882	230,823	297,244	684,401	738,106	356,872	843,540
Norway . . . . . (b)	99	304	725	445	478	994	5,135	2,983	1,369	4,612
Netherlands . . . . . (a)	0	110	12,818	18,607	525	754	61,930	112,573	1,243	142,633
Poland . . . . . (b)	13	289	1,810	2,513	1,133	3,258	10,073	16,374	4,092	21,129
Sweden . . . . .	128	150	170	196	1,078	1,431	1,753	1,801	1,779	2,332
Switzerland . . . . . (a)	117	157	421	631	2,641	4,087	4,892	7,449	4,482	9,081
— (b)	79	99	646	251	1,301	1,248	5,937	5,626	1,398	6,570
Yugoslavia . . . . .	11	18	5,079	3,735	97	683	23,616	32,648	745	38,111
Canada . . . . .	—	—	1,228	1,530	—	—	13,982	18,722	—	22,882
United States . . . . .	20	13	2,326	1,252	185	231	16,054	15,534	247	20,130
Japan . . . . .	33	82	3,999	2,873	1,272	1,556	23,243	28,215	2,507	35,285
Tunisia . . . . .	88	37	798	972	218	218	5,602	4,083	320	6,260
<b>Totals . . . . .</b>	<b>204,431</b>	<b>141,763</b>	<b>296,584</b>	<b>206,303</b>	<b>1,869,545</b>	<b>2,045,890</b>	<b>1,795,647</b>	<b>2,124,760</b>	<b>2,251,924</b>	<b>2,486,081</b>

a) = Wool, greasy. b) = Wool, scoured. — 1) 2) See notes page 554.

COUNTRIES	MAY		ELEVEN MONTHS (July 1-May 31)		TWELVE MONTHS (July 1-June 30)	COUNTRIES	MAY		ELEVEN MONTHS (July 1-May 31)		TWELVE MONTHS (July 1-June 30)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Coffee. — (Thousand lb.).</b>						<b>Tea. — (Thousand lb.).</b>					
<b>EXPORTS.</b>						<b>EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil . . . . .	...	...	<sup>1)</sup> 1,427,789	<sup>1)</sup> 1,796,683	2,097,337	Ceylon . . . . .	25,578	27,567	192,147	185,632	210,494
India . . . . .	3,455	2,313	14,059	19,288	20,565	China . . . . .	7,293	2,110	90,844	89,601	104,153
Java and Madura . . .	...	...	<sup>1)</sup> 56,194	<sup>1)</sup> 54,651	64,360	India . . . . .	9,266	9,105	309,728	298,044	311,611
<i>Importing Countries:</i>						Java and Madura . . .	...	...	<sup>1)</sup> 98,443	<sup>1)</sup> 85,013	107,044
Germany . . . . .	0	0	66	214	234	Japan . . . . .	...	...	<sup>1)</sup> 27,979	<sup>1)</sup> 28,393	31,720
Belgium . . . . .	13	9	128	262	284	<i>Importing Countries:</i>					
France . . . . .	0	13	7	68	71	Belgium . . . . .	2	0	9	7	9
Gr. Britain and N. Ireland . . . . .	1,984	2,538	17,487	30,827	33,217	Irish Free State . .	0	2	254	33	159
Netherlands . . . . .	518	1,486	10,642	16,546	18,470	France . . . . .	2	2	24	33	40
Portugal . . . . .	243	231	2,498	2,588	3,278	Gr. Britain and N. Irel.	6,135	6,239	62,016	73,511	78,736
Switzerland . . . . .	0	35	553	306	351	Netherlands . . . . .	9	13	115	130	146
Canada . . . . .	22	7	97	53	57	United States . . . .	121	86	721	1,122	1,706
United States . . . . .	1,329	1,122	14,903	24,544	25,212	Syria and Lebanon . .	0	0	9	0	2
Ceylon . . . . .	0	0	4	4	7	Algeria . . . . .	0	7	93	53	57
Syria and Lebanon . . .	0	0	0	2	2	Union of S. Africa . .	...	...	<sup>1)</sup> 22	<sup>1)</sup> 13	18
Australia . . . . .	7	2	49	33	40	Australia . . . . .	55	33	746	877	928
Totals . . . . .	—	—	—	—	2,263,485	New Zealand . . . . .	...	...	<sup>1)</sup> 90	<sup>1)</sup> 84	106
<b>IMPORTS.</b>						Totals . . . . .	48,461	45,164	783,241	762,546	846,929
<i>Importing Countries:</i>						<b>IMPORTS.</b>					
Germany . . . . .	28,724	25,486	302,634	277,697	307,398	<i>Importing Countries:</i>					
Austria . . . . .	1,041	1,329	11,402	10,507	11,244	Germany . . . . .	725	798	9,440	9,700	10,415
Belgium . . . . .	9,509	8,940	95,868	101,567	109,656	Austria . . . . .	68	44	794	677	728
Bulgaria . . . . .	73	77	977	961	1,074	Belgium . . . . .	73	46	564	485	534
Denmark . . . . .	5,326	4,901	54,474	53,919	57,814	Denmark . . . . .	201	93	1,142	1,153	1,230
Spain . . . . .	4,892	5,655	48,323	56,551	67,149	Spain . . . . .	9	31	238	300	359
Estonia . . . . .	11	13	148	141	152	Estonia . . . . .	7	2	73	64	66
Irish Free State . . . .	49	33	494	470	545	Irish Free State . . .	1,969	1,402	21,394	22,668	23,464
Finland . . . . .	3,860	2,698	35,902	33,691	37,038	Finland . . . . .	18	18	229	231	251
France . . . . .	24,948	28,318	352,119	375,854	409,056	France . . . . .	240	139	2,006	3,885	3,968
Gr. Britain and N. Ireland . . . . .	5,179	4,722	55,819	74,942	77,424	Gr. Britain and N. Ireland . . . . .	24,145	25,951	478,533	436,942	470,574
Greece . . . . .	1,164	1,080	11,495	11,658	12,641	Greece . . . . .	29	18	437	368	390
Hungary . . . . .	899	291	5,419	3,845	4,314	Hungary . . . . .	77	13	606	364	381
Italy . . . . .	7,487	7,028	79,797	70,077	86,889	Italy . . . . .	18	24	320	247	280
Latvia . . . . .	...	...	<sup>1)</sup> 115	<sup>1)</sup> 187	278	Latvia . . . . .	...	...	<sup>1)</sup> 73	<sup>1)</sup> 49	51
Lithuania . . . . .	35	37	388	328	359	Lithuania . . . . .	2	7	77	77	84
Norway . . . . .	4,497	2,646	32,377	34,992	37,366	Norway . . . . .	26	26	311	344	381
Netherlands . . . . .	6,153	5,690	57,051	128,726	137,461	Netherlands . . . . .	2,385	1,698	27,644	24,396	25,942
Poland . . . . .	412	1,146	14,540	15,571	16,852	Poland . . . . .	214	249	3,545	3,459	3,719
Portugal . . . . .	1,380	582	14,416	11,795	12,035	Portugal . . . . .	44	33	368	448	478
Sweden . . . . .	8,922	8,556	88,004	88,950	96,759	Sweden . . . . .	90	71	858	820	884
Switzerland . . . . .	3,719	1,905	27,990	30,210	32,058	Switzerland . . . . .	163	132	1,501	1,479	1,576
Czechoslovakia . . . .	1,971	1,799	21,592	21,678	23,177	Czechoslovakia . . . .	64	35	992	858	902
Yugoslavia . . . . .	1,512	983	12,699	12,822	13,823	Yugoslavia . . . . .	20	22	423	355	388
Canada . . . . .	3,474	4,478	28,268	33,316	36,110	Canada . . . . .	3,190	895	27,675	40,389	41,246
United States . . . . .	130,869	104,314	1,423,441	1,501,088	1,598,178	United States . . . . .	5,999	4,389	78,073	82,272	87,691
Chile . . . . .	739	364	4,974	4,189	4,394	Chile . . . . .	485	342	4,687	2,103	2,156
Ceylon . . . . .	320	375	3,025	2,853	3,150	Syria and Lebanon . . .	2	11	470	271	271
Japan . . . . .	...	...	<sup>1)</sup> 5,714	<sup>1)</sup> 5,077	6,124	Algeria . . . . .	192	64	2,665	3,761	3,863
Syria and Lebanon . . .	134	141	2,048	2,282	2,368	Egypt . . . . .	...	...	<sup>1)</sup> 13,689	<sup>1)</sup> 13,307	15,166
Algeria . . . . .	2,833	2,401	28,358	26,828	29,518	Tunisia . . . . .	317	150	3,111	1,739	1,781
Egypt . . . . .	...	...	<sup>1)</sup> 12,763	<sup>1)</sup> 15,913	17,604	Union of S. Africa . . .	...	...	<sup>1)</sup> 9,687	<sup>1)</sup> 9,354	11,636
Tunisia . . . . .	234	106	3,086	3,106	3,344	Australia . . . . .	4,083	3,150	42,382	42,516	46,260
Un. of S. Africa . . . .	...	...	<sup>1)</sup> 19,231	<sup>1)</sup> 22,772	29,313	New Zealand . . . . .	...	...	<sup>1)</sup> 7,518	<sup>1)</sup> 9,672	11,407
Australia . . . . .	719	522	3,153	4,747	5,057	<i>Exporting Countries:</i>					
New Zealand . . . . .	...	...	<sup>1)</sup> 245	<sup>1)</sup> 368	492	China . . . . .	26	35	571	624	677
<i>Exporting Countries:</i>						India . . . . .	128	148	2,939	4,308	4,414
India . . . . .	0	0	0	0	2	Java and Madura . . .	...	...	<sup>1)</sup> 1,495	<sup>1)</sup> 1,715	2,019
Totals . . . . .	261,085	226,616	2,858,349	3,048,680	3,288,216	Totals . . . . .	45,009	40,036	746,530	721,400	775,632

1) 2) See notes page 554.

COUNTRIES	MAY		EIGHT MONTHS (Oct. 1-May 31)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	MAY		TEN MONTHS (Aug. 1-May 31)		TWELVE MONTHS (August 1-July 31)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Cacao. — (Thousand lb.).</b>						<b>Total Wheat and Flour *)</b> (Thousand cents).					
<b>Exports.</b>						<b>a) NET EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Granada . . . . .	...	...	3) 3,497	3) 4,605	9,612	Germany . . . . .	5) 5) 5) 3,929	2,716			
Dominican Republ. . . . .	...	...	2) 18,750	2) 18,744	49,818	Bulgaria . . . . .	220 117 220 2,110	2,366			
Brazil . . . . .	...	...	1) 140,159	1) 100,033	211,552	Spain . . . . .	0 0 0 37	42			
Ecuador . . . . .	...	...	1) 12,994	1) 17,498	37,278	Estonia . . . . .	0 0 93 0	0			
Trinidad . . . . .	...	...	1) 28,700	1) 19,729	29,057	France . . . . .	2,207 5) 8,263	5) 5)			
Venezuela . . . . .	...	...	3) 7,474	3) 7,972	25,223	Hungary . . . . .	798 1,060 6,828	16,477	17,452		
Ceylon . . . . .	406	866	5,260	7,602	8,841	Latvia . . . . .	...	...	79 1) 0	0	
Java and Madura . . . . .	...	...	1) 1,801	1) 2,147	4,195	Lithuania . . . . .	55 0 573	29	29		
French Cameroon . . . . .	752	1,197	39,430	36,215	41,291	Poland . . . . .	198 247 1,058	359	1,466		
Ivory Coast . . . . .	4,054	3,900	77,837	59,576	77,321	Romania . . . . .	1,270 5) 1,455	181	139		
Gold Coast . . . . .	17,644	14,994	447,421	427,628	494,792	Sweden . . . . .	326 5) 439	5) 5)			
Nigeria and British Cameroon . . . . .	...	...	1) 138,016	1) 127,474	159,165	Yugoslavia . . . . .	141 7 2,478	375	626		
Saint Thomas and Prince Is. . . . .	...	...	1) 17,364	1) 13,320	19,795	U. S. S. R. . . . .	...	4) 7) 1,179 4) 7) 15,781	7) 19,271		
French Togoland . . . . .	1,556	355	14,209	13,369	11,065	Canada . . . . .	8,122 12,661 87,037	95,024	115,972		
<i>Importing Countries:</i>						United States . . . . .	5) 979 5) 14,039	15,346			
Germany . . . . .	0	0	88	205	205	Argentina . . . . .	9,555 8,391 93,743	68,044	87,308		
Belgium . . . . .	0	9	176	9	18	Chile . . . . .	5) 24 249	5) 5)			
France . . . . .	0	0	2	0	0	India . . . . .	37 18 456	234	223		
Gr. Brit. and N. Irel. . . . .	637	1,343	10,988	7,489	13,492	Syria and Lebanon . . . . .	9 5) 176	5) 5)			
Netherlands . . . . .	190	575	3,062	4,416	7,368	Algeria . . . . .	525 256 6,889	6,241	7,214		
United States . . . . .	611	672	6,413	7,474	10,823	French Morocco . . . . .	...	2) 2,460 2) 3,490	5,135		
Australia . . . . .	0	18	392	271	322	Tunisia . . . . .	205 5) 1,779	5) 5)			
<b>Totals . . . . .</b>	<b>25,850</b>	<b>23,929</b>	<b>974,033</b>	<b>875,776</b>	<b>1,211,233</b>	Australia . . . . .	5,562 3,285 56,302	41,449	50,651		
<b>Imports.</b>						<b>Totals . . . . .</b>	<b>29,230</b>	<b>27,045</b>	<b>271,756</b>	<b>267,799</b>	<b>325,956</b>
<i>Importing Countries:</i>						<b>b) NET IMPORTS.</b>					
Germany . . . . .	14,099	15,263	120,346	134,648	218,563	Germany . . . . .	287 245 5,900	6) 6)			
Austria . . . . .	1,168	906	9,083	6,693	10,282	Austria . . . . .	617 904 4,418	4,914	6,188		
Belgium . . . . .	1,188	1,345	12,932	20,144	24,954	Belgium . . . . .	1,470 1,927 20,212	21,929	25,093		
Bulgaria . . . . .	132	9	620	507	798	Denmark . . . . .	622 571 10,150	6,171	7,516		
Denmark . . . . .	1,071	1,043	5,434	6,005	8,468	Irish Free State . . . . .	1,118 1,058 8,567	9,780	11,735		
Spain . . . . .	3,190	4,802	16,358	18,362	29,762	Finland . . . . .	302 271 1,944	2,108	2,626		
Estonia . . . . .	49	46	507	509	644	France . . . . .	6) 459 6) 8,993	10,304			
Irish Free State . . . . .	933	128	2,493	3,616	4,449	Gr. Brit. and N. Irel. . . . .	12,209 11,144 99,449	108,697	130,547		
Finland . . . . .	20	13	172	101	157	Greece . . . . .	1,404 516 6,570	5,584	6,303		
France . . . . .	9,449	7,028	61,763	68,088	94,376	Italy . . . . .	558 650 3,951	4,667	5,194		
Gr. Brit. and N. Irel. . . . .	13,649	7,562	171,289	166,013	176,467	Norway . . . . .	556 668 4,202	4,030	4,996		
Hungary . . . . .	227	194	2,061	2,081	2,868	Netherlands . . . . .	820 1,010 10,280	11,482	13,510		
Italy . . . . .	511	463	5,930	4,612	6,477	Portugal . . . . .	37 55 315	476	575		
Latvia . . . . .	1,168	1,750	19,789	13,779	18,470	Romania . . . . .	6) 2 6) 6)	6)			
Lithuania . . . . .	84	132	536	445	545	Sweden . . . . .	6) 84 6) 968	721			
Norway . . . . .	121	529	4,566	3,840	5,564	Switzerland . . . . .	7) 873 7) 794 7) 8,320	7) 8,607	10,551		
Netherlands . . . . .	11,407	11,707	98,463	100,518	124,522	Czechoslovakia . . . . .	57 7) 648	99	104		
Poland . . . . .	421	891	11,466	9,610	14,253	<b>Total Europe . . . . .</b>	<b>20,930</b>	<b>20,360</b>	<b>184,926</b>	<b>198,505</b>	<b>235,963</b>
Portugal . . . . .	110	66	791	829	1,107	United States . . . . .	306 6) 3,474	6) 6)			
Sweden . . . . .	895	650	8,913	7,465	9,749	Chile . . . . .	218 6) 6) 538	518			
Switzerland . . . . .	2,520	1,444	10,939	13,726	16,455	Ceylon . . . . .	46 51 483	463			
Czechoslovakia . . . . .	2,366	1,993	16,014	17,529	23,488	China . . . . .	1,947 2,542 10,276	11,971	12,547		
Yugoslavia . . . . .	128	123	1,166	1,173	1,537	Indo-China . . . . .	...	...	390 1) 337	450	
Canada . . . . .	4,945	3,677	18,532	17,108	22,377	Japan . . . . .	...	...	1,096 1) 1,733	2,414	
United States . . . . .	26,350	18,018	421,089	297,879	412,610	Java and Madura . . . . .	...	...	1,226 1) 1,109	1,420	
Japan . . . . .	...	...	1) 1,124	1) 1,700	2,337	Syria and Lebanon . . . . .	6) 174 6) 701	858			
Australia . . . . .	1,603	622	10,897	12,302	16,239	Egypt . . . . .	...	...	1,285 1) 95	130	
New Zealand . . . . .	...	...	1) 2,818	1) 1,962	2,487	Tunisia . . . . .	6) 42 6) 602	33			
<b>Totals . . . . .</b>	<b>97,804</b>	<b>80,404</b>	<b>1,036,893</b>	<b>932,483</b>	<b>1,251,590</b>	Union of S. Africa . . . . .	...	...	529 2) 31	42	
						New Zealand . . . . .	...	...	223 1) 108	214	
						<b>Totals . . . . .</b>	<b>23,447</b>	<b>23,169</b>	<b>203,908</b>	<b>216,193</b>	<b>254,816</b>

\*) Flour reduced to grain on the basis of the coefficient: 1000 cents of flour = 1,333,333 cents of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 30 April. — 2) Data up to 31 March. — 3) Data up to 28 February. — 4) Data up to 31 December. —

5) See Net Imports. — 6) See Net Exports. — 7) Wheat only.

# STOCKS OF CEREALS

## Stocks of cereals in farmers' hands in the United States.

PRODUCTS	% stocks : total production					Stocks in 1,000 centals				
	1 July	1 April	1 Jan.	1 July	1 July	1 July	1 April	1 Jan.	1 July	1 July
	1935	1935	1935	1934	1933	1935	1935	1935	1934	1933
Wheat . . . . .	8.4	18.8	27.3	11.4	11.0	25,156	56,219	81,626	36,194	49,385
Oats . . . . .	13.4	39.6	65.8	14.7	16.4	22,557	66,619	110,803	34,425	65,399
Maize 1) . . . . .	14.7	31.8	59.1	23.3	25.1	113,377	245,381	455,850	265,647	353,275

1) Data based on maize for grain.

## Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals.				
WHEAT :					
Canadian in Canada . . . . .	113,419	115,650	122,317	108,953	119,408
U. S. in Canada. . . . .	0	120	629	0	2,428
U. S. in the United States . . . . .	13,171	18,465	23,654	48,329	74,158
Canadian in the United States . . . . .	5,567	5,622	7,151	6,073	2,602
Of other origin in the United States . . . . .	867	869	513	0	0
Total . . . . .	133,024	140,726	154,264	163,355	198,596
RYE :					
Canadian in Canada . . . . .	1,819	2,049	2,089	2,124	2,959
U. S. in Canada. . . . .	0	0	0	0	1
U. S. in the United States . . . . .	4,794	5,151	4,795	6,413	5,881
Canadian in the United States . . . . .	112	0	36	38	119
Of other origin in the United States . . . . .	1,917	1,066	686	881	0
Total . . . . .	8,642	8,266	7,606	9,456	8,960
BARLEY :					
Canadian in Canada . . . . .	2,439	3,046	4,059	4,386	3,337
U. S. in Canada. . . . .	0	0	0	0	10
U. S. in the United States . . . . .	2,929	3,888	4,398	5,104	6,440
Canadian in the United States . . . . .	117	126	90	0	0
Of other origin in the United States . . . . .	264	264	264	0	0
Total . . . . .	5,749	7,324	8,811	9,490	9,787
OATS :					
Canadian in Canada . . . . .	1,981	2,404	3,215	3,505	3,505
U. S. in Canada. . . . .	0	0	5	98	230
U. S. in the United States . . . . .	2,828	3,521	3,740	7,478	9,080
Canadian in the United States . . . . .	0	0	42	0	0
Of other origin in the United States . . . . .	19	326	598	0	0
Total . . . . .	4,828	6,251	7,600	11,081	12,815
MAIZE :					
U. S. in Canada . . . . .	749	1,220	2,512	1,586	1,863
Of other origin in Canada . . . . .	1,197	1,453	1,648	410	507
U. S. in the United States . . . . .	4,195	5,960	8,298	21,455	27,101
Of other origin in the United States . . . . .	571	677	389	0	0
Total . . . . .	6,712	9,310	12,847	23,451	29,471



## Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
Wheat (and flour in terms of grain) . . . .	17,467	21,734	18,072	19,910	18,984
Rye . . . . .	1,334	418	720	250	648
Barley . . . . .	1,980	776	564	2,160	2,696
Oats . . . . .	650	851	570	790	890
Maize . . . . .	6,298	13,478	11,731	12,307	12,821

AUTHORITY: *Broomhall's Corn Trade News*

## Stocks belonging to farmers in Germany.

PRODUCTS	% stocks: total production					Stocks in 1,000 centals				
	30 June 1935	31 May 1935	30 April 1935	30 June 1934	30 June 1933 1)	30 June 1935	31 May 1935	30 April 1935	30 June 1934	30 June 1933
Winter wheat . . .	3	6	10	4	8	2,600	5,200	8,700	4,300	7,700
Spring wheat . . .	2	7	13	4	10	300	900	1,700	600	1,400
Winter rye . . . .	6	9	14	5	8	10,000	14,900	23,200	9,500	14,600
Winter barley . . .	2	3	5	3	4	300	500	800	500	600
Spring barley . . .	4	7	12	3	4	2,200	3,900	6,600	1,800	2,300
Oats . . . . .	11	15	22	12	17	13,200	18,000	26,400	18,400	24,900
Late potatoes . . .	4	10	20	2	5	36,800	92,000	184,200	18,000	48,300

1) Average between data on 15 June and 15 July.

AUTHORITY: *Marktierichsstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A.).

## Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	June 1935	May 1935	April 1935	June 1934	June 1933
	1,000 centals				
WHEAT:					
Grain . . . . .	28,177	33,367	37,007	26,923	10,232
Flour for bread . . . . .	3,047	3,128	3,183	2,608	2,652
TOTAL 1) . . . . .	32,403	37,712	41,429	30,545	13,916
RYE:					
Grain . . . . .	23,365	27,571	31,220	16,089	9,004
Flour for bread . . . . .	1,603	1,523	1,587	1,482	1,199
TOTAL 1) . . . . .	25,722	29,811	33,555	18,268	10,868
BARLEY . . . . .	1,614	1,914	2,694	778	1,138
OATS . . . . .	2,734	2,670	2,811	818	1,153

1) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of wheat flour = 1,388.89 centals of wheat; 1,000 centals of rye flour = 1,470.59 centals of rye.

## Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	5,616	5,664	5,952	7,800	6,816
Flour as grain . . . . .	648	528	528	984	576
<b>TOTAL . . .</b>	<b>6 264</b>	<b>6,192</b>	<b>6,480</b>	<b>8,784</b>	<b>7,392</b>
<b>BARLEY . . . . .</b>	<b>560</b>	<b>480</b>	<b>720</b>	<b>900</b>	<b>640</b>
<b>OATS . . . . .</b>	<b>336</b>	<b>288</b>	<b>336</b>	<b>480</b>	<b>528</b>
<b>MAIZE . . . . .</b>	<b>2 160</b>	<b>1,680</b>	<b>1,728</b>	<b>3,504</b>	<b>2,712</b>

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News*.

## Stocks of wheat in Italy.

LOCATION	Last day of month				
	April 1935	March 1935	February 1935	January 1935	December 1934
	1,000 centals				
Wheat destined for sale by holding pools ("ammassi collettivi"):					
in collective granaries . . . . .	179	983	4,112	6,508	7,738
in granaries of producers or other persons . . . . .	9	99	507	1,003	1,303
<b>Total . . .</b>	<b>188</b>	<b>1,082</b>	<b>4,619</b>	<b>7,511</b>	<b>9,041</b>
Wheat in general stores and in free zones 2)	3,170	3,931	5,293	6,268	7,577
Wheat in bond in the chief entrepot centres	1,422	886	888	710	1,111
Wheat in mills and attached elevators 3) .	5,661	6,647	7,425	8,900	9,617
<b>GRAND TOTAL . . .</b>	<b>10,441</b>	<b>12,546</b>	<b>18,225</b>	<b>23,389</b>	<b>27,346</b>

1) Including a small quantity of wheat belonging to holding pools which is stored in general stores. — 2) Not including quantities belonging to holding pools; see previous note. — 3) Provisional figures referring to mills which have a daily capacity of not less than 40 metric quintals

## Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
<b>WHEAT:</b>					
Antwerp . . . . .	915	1,219	1,638	1,542	1,720
Rotterdam . . . . .	354	505	706	816	1,531
Amsterdam . . . . .	15	16	12	42	20
<b>RYE:</b>					
Antwerp . . . . .	158	155	1	26	34
Rotterdam . . . . .	226	254	220	220	110
Amsterdam . . . . .	2	2	2	21	5
<b>BARLEY:</b>					
Antwerp . . . . .	354	337	437	59	104
Rotterdam . . . . .	7	77	243	44	33
Amsterdam . . . . .	1	11	1	30	9
<b>OATS:</b>					
Antwerp . . . . .	31	41	57	18	56
Rotterdam . . . . .	17	0	18	73	82
Amsterdam . . . . .	28	21	26	33	27
<b>MAIZE:</b>					
Antwerp . . . . .	31	92	193	37	132
Rotterdam . . . . .	121	55	22	66	441
Amsterdam . . . . .	27	20	10	28	20

1) Imported cereals. See note on p. 306 of the *Crop Report* of April 1934. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

## STOCKS OF COTTON

## Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	June 1935	May 1935	April 1935	June 1934	June 1933
	1,000 centals				
In consuming establishments . . . . .	4,348	4,821	5,226	6,530	6,885
In public storage and at compresses . . . . .	29,966	32,343	35,508	29,511	31,084
<b>TOTAL . . .</b>	<b>34,314</b>	<b>37,164</b>	<b>40,734</b>	<b>36,041</b>	<b>37,969</b>

## Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
Bombay 1) . . . . .	2,676	3,112	3,132	4,324	3,508
Alexandria 2) . . . . .	...	1,481	1,832	1,938	2,662

1) Stocks held by exporters, dealers and mills. — 2) From February 1934 quantities consumed in Alexandria and those returned to the interior of the country are not included; prior to that date quantities returned to the interior are included.

AUTHORITIES: *East Indian Cotton Ass.* and *Commission de la Bourse de Minet-el-Bassal*.

### Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
<b>Great Britain:</b>					
American . . . . .	1,074	1,131	1,306	1,901	2,066
Argentine, Brazilian, etc. . . . .	235	357	475	649	126
Peruvian, etc. . . . .	301	354	411	303	186
East Indian, etc. . . . .	257	252	182	416	149
Egyptian, Sudanese . . . . .	1,050	1,141	1,165	1,489	994
W. Indian, W. and E. African, Australian	198	179	174	232	377
<b>TOTAL . . .</b>	<b>3,115</b>	<b>3,414</b>	<b>3,713</b>	<b>4,990</b>	<b>3,898</b>
<b>Bremen:</b>					
American . . . . .	604	762	896	2,005	2,402
Other . . . . .	275	261	280	184	76
<b>TOTAL . . .</b>	<b>879</b>	<b>1,023</b>	<b>1,176</b>	<b>2,189</b>	<b>2,478</b>
<b>Le Havre:</b>					
American . . . . .	364	498	532	894	890
French colonies . . . . .	13	9	10	49	10
Other . . . . .	71	84	76	79	30
<b>TOTAL . . .</b>	<b>448</b>	<b>591</b>	<b>618</b>	<b>1,022</b>	<b>930</b>
<b>Total Continent 1):</b>					
American . . . . .	1,437	1,809	1,848	3,484	4,114
Argentine, Brazilian, etc. . . . .	166	130	136	66	10
E Indian, Australian, etc. . . . .	248	247	196	210	84
Egyptian . . . . .	217	252	259	122	109
W. Indian, W. African, E. African, etc	112	107	121	194	89
<b>TOTAL . . .</b>	<b>2,180</b>	<b>2,545</b>	<b>2,560</b>	<b>4,076</b>	<b>4,406</b>

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Ass* and (for Le Havre) *Bulletin de correspondance de la Bourse du Havre*.

### Egg prices in Roermond.

Prices of white Dutch eggs, 57/58 grs. each, in Roermond, have not been published in the *Crop Report* for some time. In the following table are given the missing quotations expressed in florins per 100.

Date	Eggs for export into Germany	Eggs for other destinations	Date	Eggs for export into Germany	Eggs for other destinations
18 April 1935 . . . . .	2.65	1.85	24 May 1935 . . . . .	2.75	2.05
26 " " . . . . .	2.65	1.90	31 " " . . . . .	2.75	2.10
3 May " . . . . .	2.65	1.95	7 June " . . . . .	2.75	2.20
10 " " . . . . .	2.65	2.00	14 " " . . . . .	2.85	2.25
17 " " . . . . .	2.65	2.00			

## WEEKLY PRICES BY PRODUCTS

(All quotations are, unless otherwise stated, spot. The monthly averages are based on the weekly quotations, and the annual on the monthly.)

DESCRIPTION	12	5	28	21	AVERAGE				
	July	July	June	June	June	July	July	Commercial	
	1935	1935	1935	1935	1935	1934	1933	1933-34	1932-33
<b>Wheat.</b>									
Budapest: Tisza wheat, 78 kg. p. hl (pengó p. quintal) . . . . .	...	16.12	16.42	17.15	16.99*	15.75*	11.63	9.70	13.73
Braila: Good quality (lei p. quintal) . . . . .	n. 350	n. q.	n. 345	n. 400	n. 380	n. q.	n. q.	* 375	* 535
Winnipeg: No. 1 Manitoba (cents p. 60 lb) . . . . .	80	80	82 1/4	82 1/4	81 7/8	81 1/4	82 1/4	67 1/8	54 1/4
Chicago: No. 2 Hard Winter (cents p. 60 lb) . . . . .	103 1/2	n. 94	95	n. 94 1/2	n. 94 1/2	99	98 1/4	89 1/8	59 1/4
Minneapolis: No. 1 Northern (cents p. 60 lb) . . . . .	103	102 1/4	100 1/4	96 1/4	98 7/8	104	103	89 1/8	60 1/4
New-York: No. 2 Hard Winter (cents p. 60 lb.) . . . . .	101 1/4	101 1/4	105 1/4	101 1/4	102 1/4	102 1/4	110 1/4	98 1/4	68 1/4
Buenos Aires (a): Barilletta, 80 kg. p. hectol. (paper pesos p. quintal) . . . . .	6.50	6.60	6.80	6.80	6.89	6.55	6.66	5.85	6.09
Karachi: Karachi white, 2% barley 1 1/2 % dirt (rupees p. 656 lb.) . . . . .	22-2-0	22-5-0	22-0-0	21-14-0	22-5-3	21-7-0	27-0-0	22-2-4	28-4-2
Berlin: Home grown (free at Brandenburg stations; Rm. p. quintal) 2) . . . . .	20.80	20.80	20.80	20.80	20.80 <sup>10)</sup>	19.50	18.73	18.65	19.60
Hamburg (c. i. f., Rm. p. quintal): . . . . .									
No. 2 Manitoba 3) . . . . .	8.62	8.53	8.44	8.64	8.63	9.02	10.04	7.94	8.83
Barusso 4) . . . . .	6.17	6.41	6.41	6.57	6.55	6.44	8.55	6.22	7.76
Antwerp (francs p. quintal): . . . . .									
Home-grown . . . . .	81.00	81.50	81.50	82.00	82.10	74.50	85.00	63.00	79.70
No. 1 Manitoba (Atlantic) (in bond) . . . . .	99.50	101.00	101.00	100.50	102.10	76.85	79.60	67.65	74.35
Barusso (in bond) . . . . .	74.00	75.50	76.00	75.50	76.35	52.20	69.00	53.00	66.20
Paris: Home-grown (delivery regional depots; 76 kg. p. hl; frs p. quintal) 5) . . . . .	n. 76.00	n. 76.00	n. 78.00	n. 80.00	80.50	133.50*	* 112.10	125.65	107.35
London: Home grown (sh p. 504 lb.) 6) . . . . .	25/-	25/-	25/-	24/6	24/7 1/2	22/3	29/9	20/10	24/8 1/4
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.) . . . . .									
French (on sample) . . . . .	18/4 1/2	19/0 3/4	21/3	21/-	* 21/1 1/2	* 20 1 1/2	n. q.	n. q.	n. q.
No. 1 Northern Manitoba (Atlantic) . . . . .	30/-	30/3	30/-	30/7 1/2	30/4	30/9	31/2 1/2	26/9	26/8 1/4
No. 1 Northern Manitoba (Pacific) . . . . .	28/7 1/2	29/-	29/4 1/2	30/-	29/9 3/4	30/6 1/4	31/2 1/2	26/7	26/4
No. 3 Northern Manitoba (Pacific) . . . . .	26/-	26/4 1/2	26/7 1/2	27/3	27/1	28/2 1/2	29/8	24/5 1/4	25/2 1/4
White Pacific . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 20/5	n. q.
Rosafé (a float) 7) . . . . .	21/9	22/6	23/3	23/4 1/2	23/4 1/2	21/8	25/2 1/4	19/5 1/4	23/2
Australian . . . . .	25/-	25/3	26/-	26/6	26/4 1/2	25/7	28/-	23/4	25/7
Milan (b): Home-grown, soft, Buono mercantile + 76-78 kg p. hl (lire p. quint.) . . . . .	92.00	91.50	103.50	107.00	110.90	82.00	85.10	84.10	101.80
Genoa: Sicilian Durum (c. i. f., lire p. quint.) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	102.35	109.50	107.85	* 119.75
Genoa (c. i. f.; U S \$ p. quintal): . . . . .									
No. 2 Manitoba (Pacific) . . . . .	n. q.	n. q.	10) 3.42	11) 3.40	11) 3.43	3.32	3.27	* 2.87	* 2.51
No. 2 Canadian Durum 8) . . . . .	n. q.	n. q.	3.58	3.55	3.63	3.66	n. q.	3.11	2.29
Bahia Blanca, 79 kg. p. hl. 9) . . . . .	n. q.	n. q.	110/-	110/-	110/9	108/-	n. q.	* 93/6	* 1.84
<b>Rye.</b>									
Berlin: Home-grown (free at Brandenburg stations; Rm p. quintal) 2) . . . . .	16.80	16.80	16.80	16.80	16.80	16.00	15.12	15.34	15.52
Hamburg (c. i. f.; Rm. p. quintal): Plata, 72-73 kg p. hl. . . . .	4.39	4.64	4.73	4.80	4.81	5.33	6.49	4.76	* 5.98
Budapest: Pest rye (pengó p. quintal) . . . . .	...	10.25	11.00	11.50	11.47 <sup>10)</sup>	* 9.25	6.61	5.24	6.77
Warsaw: Good quality (zloty p. quint.) . . . . .	12.62	12.62	11.87	13.37	13.18	14.25	21.81	14.32	18.06
Winnipeg: No. 2 (cents p. 56 lb.) . . . . .	33 1/4	32 3/4	37 1/4	41 1/4	40 1/2	58 1/4	67 1/4	47 1/4	37 1/4
Minneapolis: No. 2 (cents p. 56 lb.) . . . . .	40 1/4	40 1/2	45 1/4	46 1/4	46 1/4	72 1/4	81 1/4	63	41 1/4
Groningen (c): Home-grown (fl. p. quint) . . . . .	7.30	7.30	7.30	7.30	7.29	n. q.	3.70	6.65	3.92

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices. — c) Prices of preceding Tuesday.

1) August-July — 2) 1 Oct. 1933-15 Aug. 1934 for wheat and 1 Oct. 1933-15 July 1934 for rye: minimum prices; subsequently, fixed producers prices for the price region of Berlin city. See also *Bull. of Agric. Economics and Sociology*, Aug. 1934, p. 342. — 3) From Nov. 1934, No. 1 Manitoba. — 4) Aug.-Dec. 1932, 80 kg. p. hl., year 1933, 79 kg.; subsequently, 80 kg. — 5) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations. — 6) From Aug. 1933, prices on the farm. — 7) August-Dec. 1932, 64 lb. p. bushel; Jan.-Oct. 1933, 63 1/2 lb.; Nov.-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 1/2 lb. — 8) From Dec. 1934, No. 1. Can. Dur. — 9) From Feb. 1934, prices in sh. p. 1000 kg. — 10) New crops. — 11) Shipping July. — 12) Price on 26 June. — 13) Atlantic.

DESCRIPTION	12	5	28	21	AVERAGE				Commercial	
	July	July	June	June	June	July	July	Season 1)		
	1935	1935	1935	1935	1935	1934	1933			
								1933-34	1932-33	
Barley.										
Warsaw: Malting, good quality (zloty p. quintal).	16.00	16.00	16.00	16.25	16.44	18.50	n. q.	15.87	17.11	
Braila: Average quality (lei p. quintal).	n. 190	n. q.	210	210	210	201	173	15 <sup>a</sup>	186	
Prague: Malting, av. qual. (crs. p. quintal) 2)	n. q.	n. q.	135.50	135.50	135.50	128.00	n. q.	94.20	83.30	
Winnipeg: No. 4 Western (cents p. 48 lb.).	30 1/4	31 3/4	34	36 3/4	36 1/4	44	44 1/4	36 7/8	29 1/4	
Chicago: Feeding (on sample; cents p. 48 lb.).	40	45	49	50	47 1/4	63 3/4	58 1/4	54	33 1/4	
Minneapolis: No. 2 Feeding (c. p. 48 lb.).	37	42	43	43	43 1/4	53 1/4	53 1/4	45 1/8	27 1/4	
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3) 4).	16.70	16.70	16.70	16.70	16.70	15.40	15.28	16.17	16.58	
Antwerp: Danubian (in bond; francs p. q.)	75.00	77.00	78.00	77.00	77.75	62.90	53.25	49.35	55.50	
London: English malting, best quality (sh. p. 448 lb.) 5)	n. 28/6	n. 28/6	n. 32/6	n. 32/6	n. 32/6	n. q.	n. q.	39/5 1/4	35/-	
Liverpool and London (c i f, parcels; shipping current month, sh. p. 400 lb.):										
Danubian, 3 % dirt . . . . .	13/-	13/6	15/-	15/-	15/1 3/4	17/9 1/4	15/7 1/2	13/9 1/4	16/7	
No. 3 Canadian Western . . . . .	16/4 1/2	16/1 1/2	17/1 1/2	17/9	17/8 1/4	20/0 1/2	n. q.	17/9 1/2	18/1 1/4	
Californian malting (sh. p. 448 lb.) . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	24/8 1/4	n. 25/10 1/2	22/7 1/2	22/8	
Plate (64-65 kg p. hl) . . . . .	13/9	14/-	15/6	16/1 1/2	16/1 1/4	18/6 1/4	16/8	14/2 1/4	15/9 1/8	
Persian . . . . .	13/-	14/1 1/2	15/-	15/6	15/7 1/4	17/3 1/4	15/9 1/2	14/0 1/4	16/4	
Groningen a) Home grown, winter (fl p q)	5.17	5.17	5.15	5.15	5 13	5 01	3.65	4.44	4.40	
Oats.										
Braila: Good quality (lei p. quintal) . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	148	195	
Winnipeg: No. 2 White (cents per 34 lb.)	43	44 1/8	39 5/8	39 5/8	39 3/4	38 1/8	39 1/8	33 7/8	26 1/8	
Chicago: No. 2 White (cents per 32 lb.) . .	36 1/4	35 1/2	41 3/4	42 3/4	41 1/4	45 7/8	40 1/4	37 1/4	21 1/4	
Buenos Aires b) Current quality (paper pesos p. quintal) . . . . .	5.00	5.05	5.15	5.25	5.34	4.56	4.35	3.65	4.43	
Berlin: Home grown (free at Brandenburg stations, Rm. p. quint.) 3)	16.90	16.90	16.90	16.90	16.90	17.41	13.79	14.92	13.05	
Paris: Home grown, black and other (delivery regional depots; frs. p. quintal).	38.50	41.25	41.50	46.50	45.40	53.75	60.45	48.00	76.30	
London: Home grown white (sh. p. 336 lb.) 5)	23/-	23/-	23/-	23/-	23/-	19/6	17/6	18/1 1/4	18/6	
Liverpool and London (c i f, parcels, shipping current month, sh. p. 320 lb.):										
Canadian, No. 2 Western (Pacific) 6)	21/7 1/2	20/9	19 7 1/2	19/10 1/2	19/11	19/23 1/4	n. q.	17/4	16/9	
Plate (f a. q.) . . . . .	12/9	12/6	12/9	13/-	13/0 3/4	11/7 1/2	12/3 3/4	10/2	12/9	
Milan (c) (lire p. quintal):										
Home grown . . . . .	67.50	67.50	67.50	67.50	n. 67.50	51.35	51.40	50.70	62.80	
Foreign . . . . .	68.00	68.00	67.00	67.00	67.00	50.85	49.80	50.05	57.10	
Maize.										
Braila: Average quality (lei p. quintal) . .	235	n. q.	250	250	239	n. 284	171	223	173	
Chicago: No. 3 Yellow (cents p. 56 lb.) . .	85 1/2	81 1/4	84	83 3/4	84 1/8	63 3/8	55 7/8	78 1/2	46 7/8	
Buenos Aires (b) Yellow Plata (paper pesos p. quintal) . . . . .	4.40	4.40	4.45	4.50	4.50	5.53	4.09	5.72	4.26	
Antwerp (in bond, francs p. quintal):										
Yellow Plata . . . . .	53.75	55.50	56.50	56.50	57.50	52.10	47.60	53.70	48.35	
Cinquantino (Argentine "Cuarentino") . .	56.00	63.00	67.50	68.50	68.75	56.25	67.90	58.25	58.00	
Liverpool and London (c i f, parcels, shipping current month; sh. p. 480 lb.):										
Danubian . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	19/4	16/9	20/-	16/9 1/4	
Yellow Plate . . . . .	15/-	15/-	15/9	16/3	16 2 1/4	19/1	16/9 3/4	19/8 1/4	16/7	
No. 2 White flat African . . . . .	16/9	17/3	17/6	n. q.	17/9	n. q.	n. q.	21/4 1/4	n. q.	
Milan (c): "Alto Milanese" (lire p. quint.)	79.00	80.00	81.00	81.00	82.00	64.25	50.00	58.50	58.80	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted — n. = nominal. — a) Prices of preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. See also *Bull. of Agric. Econ. and Soc.*, Nov. 1934, p. 512 — 3) From 16 July 1934 for fodder barley and from 1 August 1934 for oats, fixed producers' prices for the price region of Berlin city. See also *Bull. of Agric. Econ. and Soc.*, Aug. 1934, p. 342. — 4) July-August 1933, two rowed winter barley; Sept 1933-June 1934, spring barley, average quality. — 5) From Aug. 1933, prices on the farm. — 6) June-Dec. 1934, Atlantic — 7) 1st quality fodder barley — 8) 2nd quality, 28/6. — 9) Shipping August-Sept.; new crop. — 10) New crop. — 11) Shipping August. — 12) Atlantic. — 13) Price on 26 June.

DESCRIPTION	12	5	28	21	AVERAGE				Commercial	
	July	July	June	June	June	July	July	Season 1)		
	1935	1935	1935	1935	1935	1934	1933	1934	1933	
Rice (milled).										
Valencia (a): No. 3 Belloch (pesetas p. quintal) . . . . .	57.50	57.50	57.50	57.00	57.50	44.75	41.50	46.95	43.10	
Milan (b) (lire p. quintal):										
Vialone, oiled . . . . .	148.00	148.00	<sup>1)</sup> 148.00	150.00	153.30	178.50	239.50	177.10	198.20	
Maratelli, oiled . . . . .	128.50	131.50	<sup>1)</sup> 131.50	131.50	133.30	135.10	169.00	138.05	139.90	
Originario, white . . . . .	125.50	127.50	<sup>1)</sup> 127.50	126.00	127.50	103.60	104.20	102.80	95.50	
Rangoon: No 2 Burma (rupees p. 7500 lb.)	265	265	262 1/2	267 1/2	<sup>1)</sup> 265	216 1/4	203	201 1/2	194 1/2	
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % broken . . . . .	...	...	4.46	4.46	<sup>1)</sup> 4.37	3.15	5.21	3.25	4.08	
No. 2 Japan, 40 % broken . . . . .	...	...	4.23	4.23	<sup>2)</sup> 4.13	2.99	5.02	3.09	3.90	
Marseilles (a): No. 1 Saigon (c. i. f.; frs. p. quintal) . . . . .	57.00	58.00	n. q.	58.00	* 57.65	* 45.35	65.50	45.95	53.10	
London (a) (c. i. f.; shillings p. cwt.):										
No. 3 Spanish Belloch, oiled . . . . .	13/-	13/-	13/-	13/-	13/6	9/9	11/0 3/4	*10/9	12/5 1/2	
No. 6 Italian good, oiled . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	* 11/9	14/6	11/10 3/4	11/2 1/2	
American Blue Rose, extra fancy . . . . .	15/3	15/3	15/3	15/0 3/4	15 1 1/2	17/4	16/3 3/4	17/3 1/2	16/9 1/2	
No. 2 Rangoon or Bassin (Burma) . . . . .	7 9/4	7/10 1/2	7/10 1/2	8/-	7/11 1/2	7/-	6/11 1/2	6/7 1/2	6/6 1/2	
No. 1 Saigon . . . . .	7/6	7/7 1/2	7/7 1/2	7/7 1/2	7/6 3/4	6/0 1/2	7/10 1/2	6/3 1/2	6/9 1/2	
Siam Super, white . . . . .	9/7 1/2	9/9	9/9	10/1 1/2	9/9 1/4	7/4 1/2	8/11 1/2	7/5	8/1 1/2	
Tokyo: Chumai (brown Japanese, average quality, yen p. koku) . . . . .	29.60	29.80	29.40	29.00	29.12	25.87	20.60	26.09	21 62	
Linseed.										
Buenos Aires (a): Current quality (paper pesos p. quintal) . . . . .	11.60	11.60	11.77	11.80	11.87	13.65	13 10	12.74	10.56	
Antwerp: Plate (in bond; frs. p. quint.).	128.00	129.00	129.50	130.50	130.85	112.25	134.50	107.60	111.70	
London (c. i. f.; £ p. long ton):										
Plate (delivery Hull) . . . . .	9-1-3	9-1-3	9-3-9	9-5-0	9-5-11	10-8-1	11-7-10	10-0-8	9-11-11	
Bombay bold . . . . .	11-15-0	11-15-0	11-15-0	11-15-0	11-16-10	12-3-1	12-11-3	11-17-0	11-5-4	
Duluth: No 1 Northern (quotations of terminal market; cents p. 56 lb.) . . . . .	152	153	<sup>1)</sup> 156	<sup>1)</sup> 157	<sup>1)</sup> 160 1/2	189	210 3/4	186 1/2	156 3/4	
Cotton seed.										
Alexandria (piastres p ardeb):										
Upper Egypt . . . . .	...	66 3	63.9	n. 64 3	n. 62.7	43.7	58.8	41.8	67.3	
Sakellariidis . . . . .	...	62.3	59.4	n. 59.0	n. 57.2	n. 40.1	55.2	* 37.5	63.6	
London:Sakellariidis (c.i.f., delivery Hull, £ p. long ton) . . . . .	n. 6-1-3	n 6 -0-0	n. 5-17-6	n. 5-17-6	n. 5-15-7	4-8-5	5-17-6	4-5-11	6-11-4	
Cotton.										
New Orleans: Middling (cents p. lb.) . . . . .	12.35	12.20	12.20	11.86	12.00	12.69	10.53	10.90	7.27	
New York: Middling (cents p. lb.) . . . . .	12.45	12.20	12.20	11.85	11.95	12.81	10.62	11.07	7.38	
Bombay: M. g. Broach f. g (terminal market quotations; rup. p 784 lb.).	239	233	<sup>1)</sup> 228	<sup>1)</sup> 229	<sup>1)</sup> 228 1/2	212 1/2	211 1/2	197	201 1/2	
Alexandria (talariis p. kantar):										
Sakellariidis, f. g. f. . . . .	14.45	14.50	14.60	14.45	14.54	15.37	15.19	14.44	14.15	
Ashmun-Zagora, f. g. f. . . . .	n. 13.65	n. 13.52	13.40	13.07	13.26	12.89	13.66	11.63	12.46	
Bremen: Middling (U. S. cents p lb.) . . . . .	...	14.41	13.96	13.85	13.84	14.54	12.34	12.56	8.54	
M. g. Broach, f. g. (pence p. lb.) . . . . .	...	n. 6.35	n. 6.25	n. 6.25	n. 6.25	5.37	5.29	n. 4.81	n. 4.81	
Le Havre: Middling (Gulf; frs p 50 kg.).	251.00	247.50	243.00	239.50	242.35	252.25	257.25	229.85	237.75	
Liverpool (pence per lb.):										
Middling, fair . . . . .	n. 7.84	n. 7.84	n. 7.75	n. 7.69	n. 7.71	n. 8.00	n. 7.56	n. 7.11	n. 6.76	
Middling . . . . .	6.94	6.94	6.85	6.79	6.81	6.95	6.36	6.02	5.61	
Sao Paulo, g. f. . . . .	n. 7.09	n. 7.04	n. 7.00	n. 6.94	n. 6.92	6.90	n. 6.61	6.13	n. 5.87	
C. P. Oomra, superfine . . . . .	6.15	6.16	6.03	5.98	5.98	5.45	5.54	4.92	5.22	
M. g Broach, f. g. . . . .	5.95	5.91	5.78	5.73	5.72	5.17	n. 5.39	n. 4.62	n. 5.01	
Egyptian Sakellariidis, f. g. f. . . . .	7.99	8.04	8.03	8.05	8.06	8.47	8.42	8.07	7.77	
Upper Egyptian, f. g. f. . . . .	7.45	7.44	7.41	7.26	7.34	7.22	7.59	6.64	7.01	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices.

1) Cottonseed: Sept.-Aug; cotton: Aug.-July. — 2) Price on 26 June — 3) 14 June: 265. — 4) 14 June: 4 19 7 June: 4.37. — 5) 14 June: 3.91; 7 June: 4 15. — 6) July futures. — 7) July-August futures.

DESCRIPTION	12	5	28	21	AVERAGE				Commercial Season	
	July	July	June	June	June	July	July	1934	1933	
	1935	1935	1935	1935	1935	1934	1933			
<b>Bacon.</b>										
London, Provision Exchange (a) (shill p. cwt)										
English, No 1, lean sizable. . . . .	93/-	100/-	100/-	98/-	98/-	87/3	...	91/2	...	
Danish, No 1, sizable . . . . .	93/-	97/-	102/-	97/-	97/9	86/-	76/-	87/11	74/5	
Irish, No 1, sizable . . . . .	93/6	100/-	102/-	98/6	98/7	90/-	93/6	90/5	83/4	
Lithuanian, No 1, sizable . . . . .	84/-	88/-	92/-	92/-	91/-	80/6	62/6	82/-	65/5	
Dutch, No 1, sizable . . . . .	90/-	97/-	97/-	95/-	94/9	81/7	64/7	84/-	67/6	
Polish, No 1, sizable . . . . .	82/-	86/-	90/-	90/-	89/-	79/6	61/3	80/11	63/10	
Swedish, No 1, sizable . . . . .	90/-	98/-	98/-	95/-	95/-	82/6	68/6	84/4	70/-	
Canadian, No 1, sizable . . . . .	82/-	86/-	90/-	90/-	89/-	78/3	57/6	80/3	64/6	
<b>Butter.</b>										
Copenhagen (b) Danish (crs. p quint.) . .	164.00	164.00	168.00	168.00	164.50	138.50	157.25	160.75	171.00	
Leeuwarden, Commission for butter quotations (b). Dutch (cents p kg) . . .	43	43	43	42	40 1/4	39 1/2	54	44 3/8	60	
Zutphen, auction Dutch (price for home consumption; cents p. kg) . . . . .	146	146	146	155	151 1/4	142 1/2	158	147 1/8	159 1/8	
Germany (c) (fixed prices, Rm. p. 50 Kg.) 1): Butter with quality mark . . . . .	130.00	130.00	130.00	130.00	130.00	127.25	114.61	129.04	112.72	
Creamery butter . . . . .	123.00	123.00	123.00	123.00	123.00	117.00	110.00	120.87	106.25	
London (d): English creamery, finest quality (shillings p cwt) . . . . .	112/-	112/-	112/-	112/-	110/10	109/8	130/8	109/6	140/10	
London, Provision Exchange (a) (shill. p cwt.).										
Danish creamery, unsalted. . . . .	99/6	99/6	102/-	102/-	100/10	88/6	95/6	98/8	103/9	
Estonian, unsalted . . . . .	82/-	82/-	84/-	80/-	* 80/8	62/6	73/-	* 67/11	* 84/4	
Latvian, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	62/6	73/1	* 69/3	* 82/9	
Dutch creamery, unsalted . . . . .	83/-	83/-	82/-	80/-	78/6	69/3	93/-	80/4	103/4	
Argentine, finest, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	76 10	* 68/3	* 77/10	
Siberian, salted . . . . .	83/-	82/6	84/-	83/-	80/10	62 6	71/-	* 66/-	* 73/5	
Australian, finest, salted . . . . .	86/6	85/6	86/6	86/-	84/7	69/1	78/9	70/2	80/-	
New Zealand, finest, salted . . . . .	89/6	88/6	89/6	89/-	86/10	74 9	79/-	72/7	81/1	
<b>Cheese.</b>										
Milan (lire p quintal)										
Parmigiano-Reggiano, 1st quality, production 1932 2) . . . . .	720.00	720.00	720.00	720.00	718.75	n. q.	1,262.00	989.00	1,234.00	
Parmigiano - Reggiano, 1st quality, production 1933 2) . . . . .	625.00	625.00	625.00	625.00	625.00	740.00	1,050.00	806.00	1,015.00	
Green Gorgonzola, mature, choice . . .	495.00	515.00	525.00	540.00	536.25	415.00	455.00	412.60	473.70	
Rome: Roman Pecorino, choice (lire p. q.)	837.50	825.00	825.00	787.50	796.60	615.00	1,053.00	658.65	1,029.00	
Alkmaar Edam 40 + (40 % butterfat, with the country's cheesemark) factory cheese, small (florins p 50 kg.) . . .	14.00	14.00	13.00	13.00	13.25	22.40	19.50	20.98	22.40	
Gouda Gouda 45 + (whole milk cheese, with the country's cheesemark) home made (florins p. 50 kg.) . . . . .	17.00	16.00	16.00	16.00	16.00	21.00	25.25	22.52	26.59	
Kempen (c) (Rpf. p. 1/2 kg.): Soft cheese, green, 20 % butterfat . .	26	26	26	26	26	21	23 1/4	23 1/4	20 1/8	
Emmenthal from the Allgau, whole milk cheese, 1st quality . . . . .	77	77	77	77	77	71	72	71 1/4	72 1/4	
London, Provision Exchange (a) (shill. p. cwt) .										
English Cheddar, finest farmers . . .	n. q.	n. q.	86/-	86/-	86/-	66/6	* 61/2	* 83/5	86/3	
English Cheshire, officially graded 3) .	*) 56/-	*) 56/-	*) 56/-	*) 56/-	*) 55/5	57/2	70/7	83/4	94/4	
Italian Gorgonzola (d) . . . . .	100/4	102/8	107/4	109/8	109/1	80/9	81/11	82/9	85/3	
Dutch Edam, 40 + (d) . . . . .	31/6	32/-	32/6	33/-	33/5	56/3	51/4	54/5	59/8	
Canadian, finest white . . . . .	63/-	63/-	63/-	63/-	63/-	58/-	66/10	54/-	59/8	
New Zealand, finest white . . . . .	44/6	45/3	45 6	44/6	44 4	48/3	49/-	46/5	46/10	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal — Average prices of Thursday and Friday morning. — b) Thursday prices. — c) Wednesday prices — d) Average prices for the week.

1) See note on page 306 of the *Crop Report* of April 1934. — 2) Prices of 1932 cheese are compared for the Commercial season 1934 and 1933 with those of cheese made in 1931 and in 1930 respectively; prices of 1933-cheese with those of cheese made in 1932 and 1931. The yearly averages refer to periods from Sept. to August. — 3) From May 1934 onwards, National mark, selected. — 4) New make.



DESCRIPTION	12	5	28	21	AVERAGE					Commercial Season	
	July	July	June	June	June	July	July	July		1934	1933
	1935	1935	1935	1935	1935	1934	1933	1933			
<b>Eggs.</b>											
Antwerp, auction: Belgian, average qual. (irs. p. 100) . . . . .	42.00	43.00	41.00	40.00	37.25	32.00	30.50			42.80	48.40
Denmark (a): Danish for export (crs. per quintal) . . . . .	74.00	70.00	70.00	76.00	74.50	74.50	70.00			103.60	105.85
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100) 1):											
Fixed price for export into Germany . .	2.95	2.70	2.70	2.85	*) 2.79	3.12	2.30			3.96	3.48
Price for other destinations . . . . .	2.30	2.30	2.25	2.25	*) 2.24	2.55	2.30			3.34	3.48
Warsaw (b): Polish, average weight 50 gr. each, different colours (zloty p. 1440, including box) . . . . .	90.00	90.00	90.00	87.50	81.12	75.00	93.75			106.50	123.60
Berlin (c): German, big, new laid (Rm. p. 100):											
marked «G I S», 65 gr. each . . . . .	9.75	9.75	9.00	9.00	9.00	9.25	9.05			10.37	10.41
marked «G I B», 55/60 gr. each . . . .	8.50	8.50	8.00	8.00	8.00	7.75	7.17			9.03	9.05
London, Egg Exchange (d) (sh. p. great hundred):											
English, National mark, specials . . .	12/3	11/6	12/1 1/2	12/6	12/8	13/7 1/2	13/10 3/4			15/5	15/10 1/2
Belgian, 15 1/2 lb. p. 120 . . . . .	n. q.	n. q.	8/-	8/1 1/2	7/10 3/4	n. q.	8/1 1/2			* 11/0 3/4	* 11/1
Danish, 18 lb. p. 120 . . . . .	9/9	9/-	9/9	10/-	9/10 1/2	9/9	10/0 1/2			* 12/5 1/2	* 12/9 1/2
North Irish, 18 lb. p. 120 . . . . .	11/4 1/2	10/4 1/2	10/10 1/2	11/9	11/8	12/1	12/3 1/2			* 12/9 1/2	15/1
Dutch, all brown, 18 lb. p. 120 . . . .	10/4 1/2	9/4 1/2	9/9	10/7 1/2	10/3	11/2	11/4			13/5	* 14/10 1/2
Polish, 51/54 grams each 2) . . . . .	6/1 1/2	5/11 1/2	5/10 1/2	5/11 1/2	5/10	6/-	5/7			6/10 3/4	* 7/4 1/2
Chinese, violet . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			* 8/3 1/2	* 9/10
Australian, 16 lb. p. 120 . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			* 11/5 1/2	* 12/4 1/2
<b>Maritime freights 3).</b>											
<b>Shipments of Wheat and Maize.</b>											
										1933-34 *)	1932-33 *)
Danube to Antwerp/Hamburg. } (shill. per	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	13/6			* 14/1	* 13/9
Black Sea to Antwerp/Hamb. } long ton)	9/-	9/-	n. 9/-	n. 9/-	n. 9/3	9/4 1/2	10/1 1/2			10/3	10/-
St. John to Liverpool 4) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			* 1/11	* 1/7
Port Churchill to United King- dom . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			* 2/9	* 3/-
Montreal to United Kingdom. } (shill. per	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	1/3			* 1/4 1/2	* 1/8 1/2
Gulf to United Kingdom 4) . . . . .	1/6	2/6	2/6	2/6	2/6	2/6	n. q.			* 2/6 1/2	* 2/-
New York to Liverpool 4) . . . . .	1/6	1/6	1/6	1/6	1/6	1/6	1/3 1/4			1/6	1/6
Northern Range to U.K./Cont. )	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			* 1/9	10) 0.06
North Pacific to United Kingdom (sh. per long ton) . . . . .	n. q.	n. q.	n. q.	n. q.	* 16/-	n. q.	n. q.			* 20/1	* 20/10
Vancouver to Yokohama 4) (U.S.A. \$ p. short ton) 5) . . . . .	...	...	...	...	...	2.32	2.00			2.41	1.98
La Plata Down River 6) . . . . .											
/Bahia Blanca to U.K./ Continent . . . . .	11) 15/9	11) 15/9	11) 15/9	11) 15/9	11) 15/9	14/5 1/2	13/1 1/2			14/1	14/-
La Plata Up River 7) /Neco- chea to U.K./Continent. )	11) 17/-	11) 17/-	11) 17/-	11) 17/-	11) 17/-	15/7 1/2	16/1 1/2			15/9	15/10
Western Australia to U. K./Continent . . . . .	n. q.	24/6	24/6	24/6	24/3	24/3	23/-			23/10 1/2	24/6 1/2
<b>Shipments of Rice.</b>											
										1934	1933
Saigon to Europe . . . . . } (shill per	19/-	19/-	18/-	18/-	18/-	23/6	23/-			24/2 1/2	23/5 1/2
Burma to U.K./Continent . . } long ton)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	23/-			* 23/3	* 23/1 1/2

\* Indicates that the product or the maritime freight, during part of the period under review, was not quoted. — n. q. = not quoted. — n = nominal. — a) Average prices for weeks beginning on Fridays indicated. — b) Average prices for weeks beginning on preceding Mondays. — c) Thursday prices. — d) Prices of preceding Monday.

1) See note on p. 307 of the *Crop Report* of April 1934. — 2) From Nov. 1933, 51/52 grams each. — 3) Rates for entire cargoes; see note on p. 307 of the *Crop Report* of April 1934. — 4) Rates for parcels by liners. — 5) May-Oct. 1934 and from 25 Jan. 1935, Canadian \$. — 6) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 7) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 8) See notes of page 559. — 9) August-July. — 10) Freight in U. S. A. \$ per 100 lb. — 11) Minimum rates, see notes on p. 247.

AVERAGE MONTHLY PRICES BY COUNTRIES <sup>1)</sup>

GROUPS	DESCRIPTION	AVERAGE							Agricultural year 2)	
		June	May	April	Jan.-March	April-June	April-June	1933-34	1932-33	
		1935	1935	1935	1935	1934	1933			
GERMANY (Prices in Reichsmarks per quintal)										
A I	†Wheat (Berlin) 3)	20.80	20.80	20.70	20.45	19.30	19.49	18.58	20.03	
	†Rye (Berlin) 3)	16.80	16.80	16.70	16.45	16.20	15.45	15.26	15.77	
	†Barley, feeding (Berlin) 3) 4)	16.70	16.70	16.60	16.35	16.40	16.87	16.17	16.57	
	†Oats (Berlin) 3)	16.90	16.90	16.80	16.55	16.45	13.29	14.62	13.25	
	†Red potatoes (Berlin)	4.80	4.80	4.80	4.80	3.68	* 2.70	* 3.04	* 2.67	
A II	†Beef, live weight (Berlin)	81.80	81.40	81.40	77.87	65.20	63.13	64.67	64.42	
	Veal, live weight (Berlin)	80.80	79.40	76.20	61.93	68.47	71.07	68.55	71.36	
	†Pork, (220-265 lb.), live weight (Berlin)	91.80	90.40	91.20	91.80	72.13	66.87	85.03	77.40	
	Milk, fresh (Berlin)	14.50	14.50	14.50	14.50	14.50	13.85	14.12	13.84	
	† Butter with quality mark	260.00	260.00	260.00	260.00	252.84	209.66	253.38	212.92	
	†Cheese, Emmenthal variety (Kempten)	154.00	151.50	150.00	148.00	142.00	145.50	142.25	153.00	
	†Fresh eggs (Berlin) (per 100)	9.00	9.00	9.00	10.71	9.27	8.89	10.78	9.95	
B I	Basic slag (Aachen) 5)	0.223	0.206	0.240	0.239	0.247	0.243	0.254	0.240	
	§Superphosphate of lime 18 % (Hildesheim) 5)	0.298	0.314	0.314	0.312	0.305	0.306	0.316	0.308	
	§Potash salts 38-42 % (mine stations) 5)	6) 6.27	6) 6.51	6) 6.86	6) 6.86	0.165	0.163	0.167	0.168	
	Sulphate of Ammonia 5)	0.710	0.710	0.710	0.703	0.710	0.760	0.676	0.726	
	Nitrate of lime 5)	0.990	0.990	0.990	0.970	0.990	0.990	0.952	0.952	
B II	Wheat bran (Hamburg)	12.32	12.32	12.26	12.15	11.77	8.37	11.06	8.74	
	Lanseed cake (Hamburg)	14.90	14.90	14.90	15.27	16.77	11.72	16.67	10.68	
	Coconut cake (Hamburg)	14.90	14.90	14.90	15.27	16.66	12.48	16.58	10.91	
	Groundnut cake (Hamburg)	14.10	14.10	14.10	14.47	16.37	11.78	15.89	11.14	
	Crushed soya extraction residue (Hamburg)	12.60	12.60	12.60	12.97	15.38	10.12	14.49	10.03	
BELGIUM (Prices in Belgium francs per quintal)										
A I	Wheat (Antwerp)	82.10	79.80	80.00	60.15	62.85	82.90	63.90	79.15	
	Rye (Antwerp)	79.25	77.60	78.00	65.80	48.45	53.30	45.75	55.65	
	Barley (Antwerp)	97.50	95.60	97.75	82.10	62.10	63.40	58.45	67.80	
	Oats (Antwerp)	102.50	93.80	91.50	71.30	63.05	80.45	60.95	82.20	
A II	Beef, live weight (Curegem-Andriecht)	491.00	470.00	471.00	423.00	482.00	522.00	503.00	493.00	
	Veal, live weight (Curegem-Andriecht)	559.00	620.00	625.00	650.65	724.00	741.00	733.00	795.00	
	Pork, live weight (Curegem-Andriecht)	527.00	495.00	456.00	386.35	391.00	589.00	496.00	666.00	
	Butter (Antwerp)	1,526.00	1,549.00	1,582.00	1,764.35	1,537.00	1,827.00	1,875.00	1,978.00	
	Eggs (Antwerp) (per 100)	37.25	29.80	30.80	35.70	28.95	30.30	45.95	52.50	
B I	Basic slag (Brussels) 5)	n. q.	n. q.	n. q.	1.25	1.30	1.55	1.55	1.76	
	Superphosphate of lime (Brussels) 5)	1.70	1.70	1.64	1.40	1.80	1.90	1.83	1.98	
	Sylvinitic Kainite, 14 % (Brussels)	15.00	15.00	15.00	13.50	25.00	29.50	25.00	28.65	
	§Nitrate of soda, 15 1/2 % (Brussels)	97.75	97.75	97.75	97.25	95.00	105.00	92.65	102.85	
	§Sulphate of ammonia, 20 % (Brussels)	82.50	82.50	82.50	82.00	82.50	81.50	79.10	77.40	
B II	Maize, Plate (Antwerp)	57.50	60.40	69.35	51.60	49.50	52.05	47.85	53.75	
	Lanseed cake (Brussels)	83.50	87.00	97.00	82.35	81.10	84.60	84.25	89.75	
	Coconut cake (Brussels)	94.50	90.50	* 97.00	84.50	72.30	85.35	74.80	93.40	
	Groundnut cake (Brussels)	90.00	94.00	* 95.00	81.35	71.50	84.65	77.60	94.45	
	Palm kernel cake (Brussels)	n. q.	n. q.	n. q.	80.00	77.25	83.50	75.80	84.70	
DENMARK (Prices in Danish crowns per quintal)										
A I	Wheat (Copenhagen)	10.99	10.99	11.10	10.69	12.13	12.79	11.96	11.65	
	Barley (Copenhagen)	12.29	12.67	12.68	13.13	12.53	12.29	12.13	11.89	
	Oats (Copenhagen)	13.10	13.29	13.10	13.06	12.34	11.45	12.12	11.30	
A II	†Pork, live weight	174.00	168.00	158.00	157.17	147.03	128.97	141.00	96.89	
	†Butter (Copenhagen)	164.50	148.40	161.00	191.08	130.18	148.03	161.05	168.20	
	†Eggs	74.50	64.00	62.40	86.67	63.53	67.90	101.05	105.47	

\* Indicates that the product, during part of the period under review, was not quoted — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs quintal — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*

1) Each quarter a list is published for several countries containing prices of plant (A I) and animal (A II) products sold the farmer as well as of fertilizers (B I) and of concentrated feeding stuffs for livestock (B II) bought by the farmer. In case where the market is not indicated, the price is the average one for the country — 2) July to June. — 3) See note on p. 560 and note 3) on p. 561 — 4) See note 4) on p. 561 — 5) Prices per unit of fertilizer material in 100 kg. — 6) Price per 100 kg of potash manure salt 40 %, free at buyer's station

GROUPS	DESCRIPTION	AVERAGE							Agricultural year	
		June	May	April	Jan.-	April-	April-	1933-34	1932-33	
		1935	1935	1935	March 1935	June 1934	June 1933			

## DENMARK (continued)

B I	Superphosphate 18 %	6.45	6.45	6.45	6.42	6.45	6.50	6.28	5.94
	Potash salts 40 %	12.05	12.05	12.05	11.95	14.05	13.65	13.67	13.51
	Sulphate of ammonia	16.20	16.20	16.20	15.80	16.00	14.70	15.29	13.85
	Nitrate of lime	16.15	16.15	16.15	15.75	15.85	14.55	15.13	13.92
B II	Rye, imported (Jutland)	9.87	9.72	9.94	10.79	11.78	9.94	9.50	9.68
	Maize, Plate (Jutland)	9.67	11.09	12.10	11.86	12.69	9.94	11.72	9.75
	Wheat bran, Danish (Copenhagen)	10.00	10.16	10.05	11.18	9.57	8.96	10.03	9.20
	Cottonseed cake (Copenhagen)	13.02	13.06	13.27	14.75	11.82	12.97	13.07	13.09
	Sunflower-seed cake (Copenhagen)	12.60	12.56	13.05	15.14	10.66	13.32	12.55	13.21
	Groundnut cake (Copenhagen)	13.80	13.62	13.67	14.69	12.35	14.31	13.63	15.02
	Crushed soya extraction residue (Copenhagen)	13.00	13.36	12.92	13.74	11.60	14.06	12.97	14.53

## FRANCE (Prices in francs per quintal)

A I	Wheat (Paris) 1)	80.50	81.20	77.25	78.70	130.50	97.55	124.00	112.50
	Rye (Paris)	60.00	63.00	58.00	58.65	77.35	81.35	72.25	80.15
	Barley, malting (Paris)	58.00	63.00	63.00	65.00	77.35	82.00	79.25	84.40
	Oats (Paris)	45.40	48.50	44.30	45.85	45.20	66.00	48.55	80.75
	Wine, red, 10° (Montpellier) (hectol)					104.35	103.55	100.00	130.00
A II	Beef, dead weight (2nd quality) (Paris)	514.00	497.00	490.00	437.65	551.00	555.00	531.00	607.00
	Mutton, dead weight (Paris) (2nd quality)	975.00	971.00	1,033.00	1,035.65	1,176.00	1,114.00	1,099.00	1,096.00
	Pork, live weight (Paris)	345.00	341.00	343.00	348.00	412.00	654.00	522.00	705.00
B I	Basic slag, 18 % (Thionville)	20.70	20.70	20.70	21.00	22.50	22.50	22.50	22.70
	Superphosphate 14 % (North and East)	26.75	26.75	26.75	26.75	27.25	27.25	27.25	26.30
	Sylvite, minimum 12 % 2)	15.00	15.00	15.00	15.00	16.30	10.60	16.30	10.60
	Nitrate of soda (Dunkirk)	84.00	84.00	83.50	83.50	86.85	92.40	87.75	92.25
	Sulphate of ammonia 20.4 %	86.00	86.00	85.50	86.15	89.50	94.00	89.80	94.30
B II	Linseed cake (North)	57.75	53.00	56.50	67.15	63.50	61.65	65.25	68.30
	Coconut cake (Marseilles) 3)	57.00	55.00	53.50	57.65	60.00	64.00	60.00	66.35
	Groundnut cake (Marseilles)	45.00	41.00	43.00	50.65	47.35	56.65	53.35	66.25

## GREAT BRITAIN (Prices in shillings and pence: "A", per cwt; "B", per long ton).

A I	Wheat	5/6	5/5	4/10 1/2	4 8 1/2	4/10 1	5/8 1/2	4/11	5/7 1/4
	Barley, feeding	7/0 3/4	7/0 1/4	7/2 1/2	7/11 1/2	7/6	6 7 1/2	8/9 1/2	7/1
	Oats	7/5 1/4	7/2 1/2	6/11	6/10 3/4	6/1 1/2	5/9	5/9 1/2	6/2 1/2
	Potatoes (London)	7/10	5/8 1/4	4/8 1/2	4/10 1/2	4/11	4 7 1/2	4/8 1/2	4/10 1/2
A II	Beef, dead weight (London)	65/4	63/7	61/7	61/5	65/6	68/3	64/6	70/-
	Mutton, dead weight (London)	86/2	98/1	106/9	100/4	107	92/3	86/-	79/2
	Pork, dead weight (London)	72/4	75/3	82/1	86/9	81/1	71/7	83/4	71/5
	Butter (London)	110/10	107/4	107/4	115/4	109/8	136/11	123/1	148/8
	Cheese, Cheddar (London)	86/-	86/-	86/-	86/-	79/8	92/1	82/3	96/1
	Eggs, fresh (London) (per 100)	10/6 1/2	9/1	8/2 1/4	10/10 1/4	9/-	9/3	12/9	13/4
B I	Basic slag 14 % (London)	43/-	43/-	43/-	43/-	43/-	43/-	43/-	43/-
	Superphosphate, 16 % (London)	56/-	56/-	56/-	56/-	56/-	56/-	56/-	56/-
	Kainite 14 % (London)	54/-	54/-	54/-	54/-	60/-	67/-	61/2	65/4
	Nitrate of soda, 15 1/2 % (London)	152/-	152/-	152/-	152/-	158/-	176/-	156/4	174/4
	Sulphate of ammonia 20.6 % (London)	145/-	145/-	145/-	143/2	145/-	130/-	140/3	118/8
B II	Bran, British (London)	98/-	104/9	107/9	119/6	100/1	87/9	102/10	107/10
	Bran, middlings, imported (London)	105/-	102/9	101/-	112/6	92/8	90/2	94/1	104/7
	Linseed cake, English (London)	162/9	166/-	167/-	176/3	190/4	174/2	183/2	172/-
	Cottonseed cake (London)	92/-	92/-	92/-	98/7	85/11	119/6	92/-	114/7
	Palm kernel cake (Liverpool)	125/-	125/-	125/-	129/10	117/-	122/8	117/5	122/-

\* † §: See notes on page 565.

1) See note 5) on page 560. — 2) From August 1933, rich sylvite, 18 %. — 3) 10°5 — 4) 8°5. — 5) From January 1933, prices in Coudekerque.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		June	May	April	Jan.-	April-	April-	1933-34	1932-33
		1935	1935	1935	March 1935	June 1934	June 1933		

ITALY (Prices in lire per quintal)

A I	Wheat, soft (Milan) . . . . .	110.90	112.75	107.75	96.35	85.50	94.80	84.35	102.95
	Wheat, hard (Palermo) . . . . .	128.00	122.00	122.00	111.65	106.00	113.65	104.90	120.00
	Oats (Milan) . . . . .	n. 67.50	n. 67.50	67.50	60.25	51.50	56.05	50.70	64.40
	Maize (Milan) . . . . .	82.00	73.75	69.50	61.40	58.45	49.25	50.75	58.35
	Rice, Maratelli (Milan) . . . . .	133.00	131.00	132.25	126.00	147.60	144.75	144.10	146.15
	Hemp, fibre . . . . .	365.00	351.00	351.00	280.00	283.00	264.00	273.00	256.00
	Oilve oil "Soprafino locale" (Bari) . . . . .	555.00	555.00	558.00	529.35	521.00	391.00	440.00	425.00
	Wine, ordinary, 11° (Bari) (hectol) . . . . .	70.00	65.00	65.00	65.00	53.00	65.00	60.00	72.00
A II	Beef, live weight (Milan) 1) . . . . .	242.00	257.00	256.00	251.35	237.00	227.00	229.50	240.75
	Lamb, dead weight (Rome) . . . . .	643.00	600.00	590.00	558.35	604.65	690.35	* 615.00	* 667.00
	Pork, live weight (Milan) . . . . .	350.00	355.00	356.00	340.35	382.00	433.00	395.00	419.00
	Cheese (Parmigiano Reggiano) (Milan) . . . . .	625.00	625.00	621.00	598.35	750.85	1,050.00	857.00	1,023.00
	Eggs, fresh (Milan) (per 100) . . . . .	31.15	29.00	28.10	32.65	26.45	29.70	40.00	39.45
	Wool, Italian (Rome) . . . . .	1,287.00	1,080.00	1,062.00	1,028.60	779.00	* 540.50	* 727.00	* 554.00
B I	Superphosphate of lime, 14-16 % (Milan) . . . . .	18.95	18.95	18.95	19.40	21.25	21.75	21.10	22.15
	Chloride of potash (Milan) . . . . .	43.50	43.50	43.50	44.00	63.00	70.50	66.60	70.60
	Nitrate of lime, 15-16 % (Milan) . . . . .	78.15	78.15	78.20	75.60	81.00	81.25	78.45	78.05
	Sulphate of ammonia, 20-21 % (Milan) . . . . .	77.00	77.00	77.00	75.10	79.00	80.75	77.40	78.75
	Cyanamide of calcium, 15-16 % (Milan) . . . . .	57.00	57.00	57.00	56.25	59.75	61.00	58.70	59.70
	Copper sulphate (Genoa) . . . . .	108.75	100.00	93.75	83.55	94.25	104.70	96.85	103.60
B II	Wheat bran (Genoa) . . . . .	53.90	46.60	44.00	43.50	38.35	22.20	34.10	31.95
	Rice bran (Milan) . . . . .	54.10	49.50	48.00	45.90	31.65	25.75	27.25	34.65
	Linseed cake (Milan) . . . . .	62.30	59.50	61.25	62.55	47.00	39.80	46.20	48.95
	Groundnut cake (Milan) . . . . .	47.50	43.50	43.50	42.00	25.65	39.45	33.35	48.60
	Rapeseed cake (Milan) . . . . .	37.50	39.25	41.00	41.25	27.50	21.30	24.75	25.00

NETHERLANDS (Prices in florins per quintal)

A I	Wheat (Groningen) . . . . .	12.35	12.20	12.05	11.75	12.55	n. 12.00	12.13	12.63
	Rye (Groningen) . . . . .	7.29	7.26	7.26	7.34	7.32	3.76	6.06	4.07
	Barley (Groningen) . . . . .	5.13	5.02	5.17	5.25	4.56	3.79	4.33	4.60
	Oats (Groningen) . . . . .	6.41	6.49	6.38	6.18	5.58	3.60	4.99	4.29
	Peas (Rotterdam) . . . . .	9.40	9.40	9.60	9.72	7.18	10.25	* 8.50	* 11.69
	Flax, fibre (Rotterdam) . . . . .	60.00	60.00	58.00	61.17	48.33	49.67	48.92	48.95
	Potatoes (Amsterdam) . . . . .	5.00	5.00	5.00	5.00	5.80	1.79	* 5.29	* 2.46
A II	Beef, dead weight (Rotterdam) . . . . .	50.00	53.00	54.00	54.50	59.33	56.00	57.71	60.96
	Pork, live weight (Rotterdam) . . . . .	33.00	35.00	37.50	36.17	33.00	32.17	35.92	30.29
	Butter for export (Leeuwarden) . . . . .	40.25	34.37	36.50	49.21	41.16	52.67	53.15	70.00
	Butter for home consumption (Zutphen) 2) . . . . .	151.25	147.37	147.00	148.92	144.00	154.75	154.17	—
	Cheese, Edam 40 % (Alkmaar) . . . . .	26.50	25.80	26.50	33.91	39.74	45.72	42.40	47.68
	Cheese, Gouda 45 % (Gouda) . . . . .	32.00	29.60	* 29.00	37.15	40.36	51.88	48.64	55.72
	Eggs (Roermond) (per 100) . . . . .	2.42	2.34	2.31	3.01	3.99	2.36	4.00	3.93
B I	Basic slag 3) . . . . .	0.086	0.092	0.094	0.101	0.109	0.108	0.120	0.125
	Superphosphate, 17 % . . . . .	1.65	1.64	1.63	1.62	1.92	1.95	1.91	1.94
	Kainite 3) . . . . .	0.068	0.068	0.068	0.068	0.079	0.146	0.090	0.145
	Nitrate of soda 15 1/2 to 16 % . . . . .	6.57	6.52	6.38	6.18	6.00	6.73	6.07	6.67
	Sulphate of ammonia, 20 1/2 % . . . . .	5.21	5.14	4.99	4.82	4.75	4.79	4.72	4.62
B II	Maize (Rotterdam) . . . . .	4.35	4.47	4.95	5.07	4.80	3.47	4.53	3.66
	Linseed cake, Dutch . . . . .	5.02	5.12	5.44	6.09	6.25	5.76	6.35	5.90
	Coconut cake, Dutch . . . . .	5.41	5.68	5.97	6.26	4.96	5.73	5.27	6.06
	Groundnut cake, Dutch . . . . .	4.72	4.76	4.86	5.23	4.96	5.60	5.17	6.19

POLAND (Prices in zlotys per quintal)

A I	Wheat (Warsaw) . . . . .	17.43	17.62	17.09	17.95	19.60	37.80	22.09	30.46
	Rye (Warsaw) . . . . .	13.18	14.57	13.99	14.56	13.77	19.61	14.95	18.04
	Barley (Warsaw) . . . . .	16.75	17.44	17.90	20.90	* 15.75	* 16.25	* 15.55	* 17.11
	Oats (Warsaw) . . . . .	16.65	16.34	14.68	14.32	13.50	15.20	13.69	16.66
A II	Beef, live weight (Warsaw) . . . . .	59.00	58.00	58.00	54.55	69.70	68.33	67.30	67.30
	Pork, live weight (Warsaw) . . . . .	62.00	58.00	61.00	60.73	78.72	116.00	98.65	108.00
	Butter (Warsaw) . . . . .	222.00	247.00	304.00	267.67	282.00	320.00	311.00	336.00
	Eggs (Warsaw) (per 100) . . . . .	5.63	4.81	5.28	7.66	5.55	6.14	7.99	9.36

\* , †, §: see notes on page 565.

1) Price in March: 308.00. — 2) Before January 1933, quotations in Maastricht (page 425 of the *Crop Report* of June 1933) —

3) Prices per unit of fertilizer material in 100 Kg

GROUPS	DESCRIPTION	AVERAGE							Agricultural year	
		June	May	April	Jan - March	April - June	April - June	1933-34	1932-33	
		1935	1935	1935	1935	1934	1933			
POLAND (continued)										
B I	Superphosphate 1) . . . . .	0.61	0.61	0.61	0.60	0.61	0.62	0.62	0.62	
	Potash salts, 25 % 2) . . . . .	8.95	8.95	8.95	8.73	11.31	11.37	11.06	12.91	
	Sulphate of ammonia 3) . . . . .	20.70	20.70	20.70	20.70	22.50	25.00	23.95	25.00	
B II	Wheat bran (Warsaw) . . . . .	10.90	11.45	11.25	10.80	10.90	10.32	10.67	10.78	
	Rye bran (Warsaw) . . . . .	10.03	10.50	9.62	9.03	9.23	10.40	9.05	9.82	
	Linseed cake (Warsaw) . . . . .	18.00	18.00	17.95	16.85	18.26	19.00	17.90	19.96	
	Rapeseed cake (Warsaw) . . . . .	12.50	12.25	12.30	12.80	12.63	14.32	13.67	15.67	

**SWEDEN (Prices in Swedish crowns per quintal)**

A I	Wheat (Stockholm) . . . . .	19.00	17.70	17.27	16.90	18.25	18.67	16.94	17.46
	Rye (Stockholm) . . . . .	17.00	16.70	16.27	15.89	17.01	17.17	15.55	15.94
	Barley (Stockholm) . . . . .	n. q.	n. q.	* 13.00	13.05	* 12.50	* 10.04	* 11.64	* 11.07
	Oats (Stockholm) . . . . .	11.56	11.78	11.65	11.71	11.87	8.68	11.10	8.97
A II	Beef, live weight (Göteborg) . . . . .	...	...	...	48.33	43.73	31.00	37.10	32.30
	Pork, live weight (Göteborg) . . . . .	...	...	...	68.07	50.45	60.87	49.37	61.05
	Butter (Malmö) . . . . .	230.00	230.00	230.00	230.00	230.00	182.08	228.35	176.45
	Eggs (Stockholm) . . . . .	81.20	71.50	66.50	104.53	64.27	56.64	90.47	92.50
B I	Superphosphate, 20 % . . . . .	7.80	7.80	7.80	7.80	6.90	7.02	7.51	7.65
	Potash salts, 20 % . . . . .	6.05	6.05	6.05	6.05	6.40	8.57	7.32	8.20
	Nitrate of soda . . . . .	n. q.	n. q.	n. q.	n. q.	17.35	18.95	18.15	* 18.95
	Calcium cyanamide . . . . .	n. q.	n. q.	n. q.	n. q.	16.50	16.50	16.50	* 16.50
B II	Maize, Plate . . . . .	15.69	15.75	15.62	n. q.	11.63	9.16	10.00	9.57
	Wheat bran . . . . .	12.45	12.74	12.90	12.80	11.25	8.86	10.35	9.31
	Groundnut cake . . . . .	17.20	17.11	16.82	16.71	14.43	14.02	14.80	15.24
	Cottonseed cake . . . . .	15.35	15.38	15.25	14.85	12.40	11.79	12.70	11.99
	Soya meal . . . . .	16.69	16.94	16.42	15.75	13.30	13.28	14.08	14.25

**CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)**

A I	Wheat (Prague) 4) . . . . .	182.00	180.20	178.40	174.80	155.60	164.90	146.30	* 159.20
	Rye (Prague) 4) . . . . .	140.00	138.50	137.00	134.00	113.65	85.50	98.20	97.50
	Malting Barley (Prague) 4) . . . . .	135.50	135.50	135.50	134.00	98.15	90.60	* 90.85	84.20
	Oats (Prague) 4) . . . . .	124.00	122.80	121.60	119.20	95.90	74.05	77.40	78.00
	Edible potatoes . . . . .	44.00	44.50	45.00	40.85	43.50	26.00	35.35	29.00
	Hops . . . . .	3,485.00	4,245.00	4,545.00	4,561.65	3,078.35	3,746.35	3,774.00	2,106.00
A II	Beef, dead weight . . . . .	825.00	800.00	750.00	733.35	725.00	683.00	744.00	775.00
	Vcal, dead weight . . . . .	850.00	875.00	775.00	645.65	654.00	758.00	644.00	754.00
	Pork, dead weight . . . . .	1,002.00	940.00	837.00	733.35	650.00	950.00	782.00	1,031.00
	Butter . . . . .	1,825.00	1,875.00	1,850.00	1,766.65	1,817.00	1,767.00	1,785.00	1,977.00
	Fresh eggs (per 100) . . . . .	42.10	40.83	40.83	60.30	40.55	45.15	54.15	66.05
B I	Basic slag, 15 % . . . . .	34.85	34.85	34.85	34.85	34.70	34.85	34.80	34.85
	Superphosphate, 16 to 18 % . . . . .	48.50	48.50	48.50	48.50	48.50	49.15	48.95	50.75
	Kainite, 14 % . . . . .	19.30	19.30	18.80	17.75	19.65	20.05	19.25	21.05
	Nitrate of soda . . . . .	130.00	130.00	130.00	* 130.00	125.00	147.00	* 125.00	* 147.00
	Sulphate of ammonia, 20 ½ % . . . . .	123.40	123.40	123.40	123.40	123.40	127.60	122.70	* 126.40
B II	Maize, imported . . . . .	106.50	108.50	108.50	107.50	88.90	65.60	68.10	67.20
	Wheat bran (Prague) 5) . . . . .	86.00	92.40	100.00	99.50	80.80	61.00	69.80	60.70
	Rye bran (Prague) 5) . . . . .	84.00	90.40	98.00	97.50	80.10	60.55	69.20	60.80
	Crushed soya (Prague) 5) 6) . . . . .	145.00	145.00	144.00	142.60	87.55	101.40	* 94.40	* 104.50
	Rapeseed cake (Prague) 5) 7) . . . . .	120.50	120.50	119.50	117.85	77.05	* 90.50	84.25	96.50
	Linseed cake (Prague) 5) 8) . . . . .	142.50	142.50	141.50	141.50	* 90.50	93.05	* 92.00	111.80
	Groundnut cake (Prague) 5) 9) . . . . .	153.00	153.00	152.00	150.35	* 80.00	95.90	* 89.85	114.35

1) Prices per unit of fertilizer material in 100 Kg. — 2) New series from July 1934 onwards. Potash salts 20 %. — 3) New series from July 1934 onwards. — 4) Until the end of July 1934, average wholesale market prices; subsequently, buyers' prices. — 5) Until the end of July 1934, average wholesale market prices; Aug.-Nov., manufacturers' selling prices; subsequently, wholesalers' selling prices. — 6) From Aug. 1934, soyabean cake, delivery at Lovosice. — 7) From July 1934, delivery at Lovosice. — 8) From Dec. 1932, delivery at Lovosice. — 9) From Nov. 1932, delivery at Střekov

# AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL <sup>1)</sup>

DESCRIPTION	June	May	April	March	Feb.	Jan.	June	June	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Wheat</b>										
Budapest: Tisza . . . . .	9.72	9.24	9.31	9.98	10.05	9.96	8.14	8.82	8.24	7.76
Winnipeg: No 1 Manitoba . . . . .	9.19	9.71	9.96	9.19	9.03	9.02	8.84	9.31	8.52	8.34
Chicago: No 2 Hard Winter . . . . .	10.62	11.51	12.10	11.66	11.87	12.09	10.96	12.16	11.10	11.10
Buenos-Aires: Barletta . . . . .	6.51	6.85	6.98	6.13	5.98	6.23	6.37	7.91	6.59	7.57
Berlin: Home grown . . . . .	25.69	25.88	25.73	25.44	25.26	25.07	23.14	23.61	23.65	23.09
Hamburg (c. i. f.):										
No 2 Manitoba . . . . .	10.66	11.51	11.70	10.68	10.87	11.05	10.10	11.14	10.22	10.47
Barusso . . . . .	8.09	8.42	8.56	7.46	7.27	7.53	7.06	9.46	7.51	8.83
Antwerp:										
Manitoba No 1 (Atlantic) . . . . .	10.70	11.55	11.53	10.25	10.93	10.85	10.40	11.01	10.18	10.55
Barusso . . . . .	8.00	8.32	8.65	6.55	7.08	7.21	7.35	8.95	7.41	8.75
Paris: Home grown . . . . .	16.34	16.48	15.68	15.79	16.34	15.78	26.80	19.52	24.71	22.41
Liverpool and London (c. i. f.):										
German (on sample) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 6.27	* 6.98
French (par échantillon) . . . . .	7.35	6.92	6.91	n. q.	6.29	6.45	6.97	n. q.	* 7.03	n. q.
Hungarian (on sample) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 6.26	* 7.15
No 1 Manitoba (Pacific) . . . . .	10.38	11.10	11.43	10.77	10.78	10.73	10.13	10.88	10.27	10.34
No 3 Manitoba (Pacific) . . . . .	9.43	10.23	10.54	9.69	9.64	9.61	9.38	10.35	9.42	9.75
Rosafé . . . . .	8.14	8.17	8.28	7.16	6.95	7.26	7.18	8.98	7.27	8.33
Australian . . . . .	9.47	9.47	9.66	8.60	8.21	8.10	8.88	10.41	8.74	9.60
Milan: Home grown, soft . . . . .	28.04	28.74	27.59	25.74	24.93	24.80	21.76	24.23	22.87	24.84
Genoa (c. i. f.):										
No 2 Manitoba . . . . .	10.48	11.32	n. q.	n. q.	9.77	9.56	9.72	11.24	* 9.65	* 10.60
No 2 Canadian Durum . . . . .	11.09	12.65	13.43	n. q.	12.62	12.49	10.64	10.60	* 11.07	* 10.87
<b>Rye</b>										
Berlin: Home grown . . . . .	20.75	20.90	20.76	20.50	20.32	20.13	19.58	18.92	19.32	18.54
Hamburg: Plate . . . . .	5.94	6.30	6.64	6.59	7.00	7.22	5.75	7.18	6.54	6.86
Warsaw: Home grown . . . . .	7.66	8.47	8.13	8.23	8.57	8.57	8.28	11.30	8.68	10.09
Minneapolis: No 2 . . . . .	6.68	6.76	7.54	7.58	8.32	9.05	8.23	10.61	8.49	8.66
<b>Barley</b>										
Bratis: Average quality . . . . .	6.51	6.45	7.41	7.72	8.83	n. q.	6.54	5.18	* 7.70	* 4.59
Prague: Malting, average quality . . . . .	17.34	17.34	17.34	17.34	17.15	16.95	15.16	15.57	14.48	* 12.86
Winnipeg: No 4 Western . . . . .	5.09	5.51	5.86	5.80	6.05	6.65	5.95	6.14	6.42	5.59
Minneapolis: No 2 Feeding . . . . .	6.07	7.50	9.47	9.39	10.90	11.34	7.40	6.94	8.30	6.72
Berlin: Home grown fodder . . . . .	20.62	20.78	20.63	20.38	20.19	20.01	21.23	20.71	19.41	20.22
Antwerp: Danubian . . . . .	8.15	7.86	7.84	7.26	8.82	9.57	8.45	7.54	8.70	7.17
Liverpool and London (c. i. f.):										
No 3 Canadian Western . . . . .	7.39	8.09	8.70	8.97	9.52	10.06	8.16	8.47	8.79	8.18
Plate . . . . .	6.74	6.85	7.02	6.72	7.49	7.79	7.17	7.60	7.30	6.97
Persian . . . . .	6.53	6.75	6.76	6.46	7.51	8.19	6.75	7.25	7.33	* 7.25
<b>Oats</b>										
Winnipeg: No 2 White . . . . .	8.00	8.08	8.42	8.07	8.59	8.92	7.60	7.15	7.81	7.13
Chicago: No 2 White . . . . .	8.68	9.49	11.01	9.57	11.98	12.38	9.29	9.28	9.65	8.04
Buenos-Aires: Current quality . . . . .	5.05	5.22	5.19	5.04	5.04	4.98	4.13	5.42	4.53	5.14
Berlin: Home grown . . . . .	20.87	21.03	20.88	20.62	20.44	20.25	22.29	17.06	19.96	16.40
Paris: Home grown . . . . .	9.22	9.85	8.99	8.58	10.18	9.16	10.64	12.71	10.05	12.50
London and Liverpool (c. i. f.): Plate . . . . .	6.82	6.99	6.83	6.55	6.50	6.54	5.28	7.04	5.84	6.87

<sup>1)</sup> As gold franc, the Swiss franc, which still represents the franc of the former Latin Monetary Union, has been adopted. In cases where the difference between the rates of exchange of the national currency considered and its parity with the Swiss franc did not during a given month reach 2 ½ %, the monthly average has been reduced on the basis of parity; in the contrary cases the average rate of exchange for the month has been utilized. Finally, when considerable fluctuations in the exchanges in the course of a particular month render it necessary, each weekly quotation has first been reduced to gold francs and the average of these reductions calculated.

DESCRIPTION	June	May	April	March	Feb.	Jan.	June	June	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Maize.</b>										
Braila: Danubian . . . . .	7.41	6.79	6.66	6.32	6.73	n. q.	6.54	4.68	* 7.19	* 5.18
Chicago: No 3 Yellow . . . . .	10.17	10.63	10.88	10.09	10.74	11.05	7.11	7.26	7.91	6.29
Buenos-Aires: Yellow Plate . . . . .	4.25	4.31	4.50	4.60	4.75	5.75	5.28	5.19	5.86	5.24
Liverpool and London (c. i. f.):										
Yellow Plate . . . . .	5.64	5.69	5.87	6.38	6.28	7.13	6.31	6.49	* 6.88	* 6.58
No 2 White African . . . . .	6.18	6.31	6.25	6.42	6.99	7.78	n. q.	6.98	* 7.90	* 7.15
Milan: Home grown . . . . .	20.73	18.80	17.80	17.30	15.55	15.23	16.42	13.61	14.50	13.35
<b>Rice.</b>										
Milan: Originario . . . . .	32.20	30.80	30.44	27.98	26.96	27.04	27.44	27.28	27.24	26.01
Rangoon: No 2 Burma . . . . .	8.91	8.60	8.48	7.64	7.70	7.24	6.48	7.75	6.91	7.37
Saigon: No 1 Round white . . . . .	8.87	9.28	9.05	7.67	7.47	6.92	5.68	9.09	6.59	8.28
London (c. i. f.):										
No 2 Burma . . . . .	11.84	12.12	11.39	10.63	11.01	10.49	9.67	11.79	10.17	11.08
No 1 Saigon . . . . .	11.28	11.96	11.54	10.36	10.21	9.75	8.49	12.26	9.58	11.50
Tokyo: Chumai . . . . .	18.21	18.28	18.09	18.08	18.42	18.05	16.28	16.13	16.87	15.80
<b>Cotton.</b>										
New Orleans: Middling . . . . .	80.85	83.29	81.01	80.19	85.82	86.51	81.83	87.46	83.52	75.50
Bombay (terminal market): M g Broach,										
f. g. . . . .	73.45	78.96	73.94	71.59	79.61	79.40	68.25	78.02	69.02	69.93
Alexandria: Sakellaris, f g f . . . .	99.60	101.38	100.21	100.75	107.32	110.77	107.43	118.61	108.44	104.70
Liverpool:										
Middling american . . . . .	94.82	96.07	90.76	90.55	97.98	99.57	94.20	100.67	95.28	87.50
M. g Broach, f. g. . . . .	79.64	81.59	78.53	76.61	81.48	81.77	72.19	85.21	71.87	n. 73.74
Sakellaris, f. g. f. . . . .	112.22	116.26	114.83	114.64	122.37	125.44	120.21	134.18	123.01	118.95
<b>Beef.</b>										
Berlin: Home grown (live weight) . .	101.02	101.27	101.17	95.34	94.85	98.31	78.54	83.24	83.54	78.55
Paris: Home grown (dead weight) . .	104.34	100.89	99.47	91.15	88.30	87.09	111.85	108.81	104.22	112.78
London: Home grown (dead weight) . .	97.46	94.85	90.74	87.97	88.34	95.61	101.72	114.77	101.57	111.23
<b>Mutton.</b>										
Paris: Home grown (dead weight) . .	197.92	197.11	209.70	214.16	214.77	201.78	216.80	205.03	225.99	218.93
London: Home grown (dead weight) . .	128.54	146.31	157.29	155.64	145.51	142.55	167.96	153.02	142.03	142.13
<b>Pork.</b>										
Denmark: Home grown (live weight) . .	117.43	114.28	105.52	100.78	108.49	106.36	110.71	97.22	107.97	93.20
Rotterdam: Home grown (live weight) . .	68.74	72.90	78.11	80.20	74.99	70.82	64.57	66.66	68.74	71.07
Berlin: Home grown (live weight) . . .	113.37	112.47	113.35	110.90	113.13	116.09	85.66	81.26	107.88	98.52
Paris: Home grown (live weight) . . .	70.03	69.22	69.63	70.03	70.85	71.05	81.61	124.24	85.77	131.04
London: Home grown (dead weight) . .	107.90	112.25	120.95	123.50	128.18	132.12	105.41	102.12	129.54	131.79

DESCRIPTION	June	May	April	March	Feb.	Jan.	June	June	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Butter</b>										
Copenhagen: Danish . . . . .	111.02	100.35	107.53	113.13	132.92	137.76	93.01	113.79	111.34	131.90
Leeuwarden: Dutch . . . . .	83.84	71.59	76.03	77.07	108.84	121.58	84.36	108.32	92.48	125.37
Hamburg: Schleswig-Holstein . . . . .	321.10	323.47	323.15	321.10	321.10	321.10	298.99	279.13	314.83	277.77
London:										
Danish . . . . .	150.42	138.61	144.16	152.74	177.73	175.33	131.71	155.60	150.88	174.82
Argentine . . . . .	n. q.	107.90	108.06	n. q.	138.08	n. q.	n. q.	132.13	* 106.12	131.63
Australian, salted . . . . .	126.17	115.11	107.69	107.55	129.17	118.95	112.70	135.22	137.41	134.63
New Zealand, salted . . . . .	129.53	117.72	113.46	109.24	130.29	120.82	118.70	136.77	111.11	136.44
<b>Cheese</b>										
Milan: Parmigiano-Reggiano . . . . .	158.02	159.31	159.08	155.24	156.13	157.49	196.96	284.29	190.75	264.15
Alkmaar: Edam 40 x . . . . .	55.20	53.74	55.20	66.66	70.82	74.45	87.90	100.82	87.40	93.34
Kempton: Emmenthal variety . . . . .	190.19	188.48	186.43	185.25	182.78	180.31	168.48	174.75	174.39	178.52
London:										
English Cheddar . . . . .	128.29	128.29	126.72	124.71	127.69	128.14	98.02	157.83	* 127.81	145.90
Canadian . . . . .	93.98	92.74	90.01	88.45	88.34	86.42	84.24	115.97	82.69	101.00
New Zealand . . . . .	66.13	64.89	65.82	65.86	71.02	69.66	73.13	82.36	71.08	78.93
<b>Eggs (per 100)</b>										
Denmark: Danish (per quintal) . . . . .	50.28	43.28	41.68	46.11	58.89	69.22	49.70	61.89	71.69	81.30
Roumond: Dutch for export . . . . .	5.04	4.87	4.81	5.69	6.71	6.44	7.04	5.21	8.21	7.69
Warsaw: Polish, average quality . . . . .	3.27	2.80	2.99	3.04	5.04	5.28	3.38	4.03	4.30	4.98
Berlin: German, big, special quality . . . . .	11.11	11.20	11.19	11.11	13.73	14.82	10.97	10.81	12.67	12.83
London:										
Danish . . . . .	6.24	5.66	5.70	5.96	7.63	8.20	6.46	7.18	8.08	9.10
Dutch . . . . .	6.47	6.00	5.73	6.11	8.01	8.57	7.10	8.43	8.67	* 10.06

## EXCHANGE RATES

## RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC (1)

NATIONAL CURRENCIES	Exchange rates				Percentage bonus (+) or loss (—)			
	12 July 1935	5 July 1935	28 June 1935	21 June 1935	12 July 1935	5 July 1935	28 June 1935	21 June 1935
Germany: free reichsmark. . . . .	123.000	123.250	123.150	123.250	— 0.4	— 0.2	— 0.2	— 0.2
Argentina: paper peso †) . . . . .	94.531	94.531	94.156	94.156	— 57.0	— 57.0	— 57.2	— 57.2
Belgium: belga . . . . .	51.500	51.575	51.675	51.700	— 0.7	— 0.6	— 0.4	— 0.4
Canada: dollar . . . . .	3.040	3.045	3.047	3.057	— 41.3	— 41.2	— 41.2	— 41.0
Denmark: crown . . . . .	67.550	67.450	67.250	67.600	— 51.4	— 51.4	— 51.6	— 51.3
Spain: peseta . . . . .	41.900	41.900	41.900	41.875	— 58.1	— 58.1	— 58.1	— 58.1
United Kingdom: pound sterling . . . . .	15.125	15.125	15.065	15.065	— 40.0	— 40.0	— 40.3	— 40.3
United States: dollar . . . . .	3.051	3.057	3.047	3.051	— 0.3	— 0.1	— 0.5	— 0.3
France: franc . . . . .	20.210	20.220	20.220	20.215	— 0.5	— 0.4	— 0.4	— 0.4
Hungary: pengő †) . . . . .	57.500	56.755	57.250	57.250	— 36.6	— 37.4	— 36.8	— 36.8
India: rupee †) . . . . .	114.194	114.194	113.741	113.741	— 39.6	— 39.6	— 39.9	— 39.9
Italy: lira . . . . .	25.112	25.285	25.250	25.250	— 7.9	— 7.3	— 7.4	— 7.4
Japan: yen †) . . . . .	89.237	88.985	88.632	88.632	— 65.5	— 65.6	— 65.7	— 65.7
Netherlands: florin . . . . .	207.850	208.050	208.000	207.750	— 0.2	— 0.1	— 0.2	— 0.3
Poland: zloty . . . . .	57.725	57.775	57.775	57.800	— 0.7	— 0.6	— 0.6	— 0.6
Rumania: leu . . . . .	n. 3.100	n. 3.100	n. 3.100	n. 3.100	0.0	0.0	0.0	0.0
Sweden: crown . . . . .	77.950	77.825	77.650	77.600	— 43.9	— 44.0	— 44.1	— 44.1
Czechoslovakia: crown . . . . .	12.775	12.795	12.800	12.800	— 0.2	0.0	0.0	0.0

1) The exchange rate represents the value of 100 units of the national currency (for the dollar and the pound sterling 1 unit) expressed in Swiss francs, as far as possible on the Zurich Exchange. With regard to the currencies marked thus (†) a conversion has been made, the original exchange rates on London being converted into Swiss francs by means of the rate of the £ in Zurich. — 2) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 3) As the relation between the Indo-Chinese piastre and the French franc changes only slightly, the exchange rate of the latter only is given. — 4) Bank notes.



## VARIATIONS IN THE INDEX-NUMBERS OF PRICES

On the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, it has been considered opportune to reproduce all the data in their original form, without attempting formally to unite them.

In addition to the original data summary tables are given below.

### *Percentage variations in the index-numbers for June 1935*

COUNTRIES	Comparison with May 1935		Comparison with June 1934	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany . . . . .	+ 0.9	+ 0.4	+ 8.3	+ 4.1
England and Wales . . . . .	0.0	— 1.7	+ 2.6	+ 3.8
Argentina . . . . .	— 1.3	—	+ 0.3	—
Canada . . . . .	— 4.2	— 1.1	+ 3.5	— 0.8
United States: Bur. of Agric. Economics . . . . .	— 3.7	—	+ 20.9	—
United States: Bur. of Labor . . . . .	— 2.9	— 1.6	+ 23.7	+ 5.8
Finland . . . . .	+ 1.3	0.0	+ 5.6	+ 1.1
Hungary . . . . .	— 2.6	+ 1.2	+ 10.3	+ 7.4
Italy . . . . .	+ 7.3	+ 3.3	+ 22.6	+ 14.6
New Zealand . . . . .	+ 1.4	—	— 3.2	—
Netherlands . . . . .	0.0	0.0	— 9.1	+ 1.4
Poland . . . . .	— 0.5	— 0.4	— 7.3	— 5.7
Yugoslavia				
plant products . . . . .	...	1	— 7.3	1
livestock products . . . . .	...	...	+ 7.5	— 2.6

### *Quarterly general index-numbers of prices of agricultural products.*

(Base first quarter of 1929 = 100).

COUNTRIES	1933			1934				1935	
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Germany . . . . .	62.9	66.2	70.1	69.0	69.0	74.4	75.5	75.0	75.7
England and Wales . . . . .	71.1	72.4	75.5	80.8	80.6	84.0	83.8	84.5	83.3
Argentina . . . . .	53.7	57.9	55.5	64.7	63.6	72.5	69.0	66.5	66.1
Canada . . . . .	51.6	58.9	54.3	58.2	58.8	62.7	62.9	73.8	74.2
United States: Bur. of Agric. Economics . . . . .	44.1	55.3	53.9	55.7	57.1	63.7	69.4	74.4	73.8
United States: Bur. of Labor . . . . .	46.4	54.9	52.7	56.9	57.3	63.2	67.0	73.8	75.2
Finland . . . . .	68.2	69.8	68.5	68.2	67.3	67.8	70.4	70.4	69.8
Hungary . . . . .	49.6	40.7	40.0	42.9	49.4	51.1	52.9	55.3	56.1
Italy . . . . .	50.1	49.4	51.4	52.2	53.5	55.6	57.9	58.8	63.0
New Zealand 1) . . . . .	82.2	92.2	101.8	110.6	105.8	108.6	99.9	105.9	102.3
Netherlands . . . . .	50.6	55.4	58.6	58.9	61.1	58.2	55.0	52.8	53.6
Poland 2) . . . . .	59.2	59.5	53.8	52.1	50.9	51.0	48.8	45.9	45.1
Yugoslavia { plant products . . . . .	44.7	38.1	38.3	39.7	42.5	43.5	43.1	45.3	...
livestock products . . . . .	52.8	52.3	53.9	53.1	51.9	49.4	53.0	53.4	...

1) Base: first quarter of 1931 = 100. — 2) First month of each quarter compared with January 1929.

# **INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER <sup>1)</sup>**

DESCRIPTION	June	May	April	March	Feb.	Jan.	June	June	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Germany</b>										
(Statistisches Reichsamt)										
1913 = 100.										
Foodstuffs of plant origin . . . . .	115.0	114.5	114.1	114.1	113.8	113.2	109.4	100.8	108.7	98.7
Livestock . . . . .	83.2	80.6	79.2	76.7	74.9	76.2	63.8	59.7	70.9	64.3
Livestock products . . . . .	103.4	103.3	103.1	102.8	107.2	108.8	105.5	93.1	105.0	97.5
Feeding stuffs . . . . .	104.6	104.6	104.8	105.2	105.0	105.2	107.7	86.6	102.0	86.4
Total agricultural products . . . . .	101.5	100.6	100.0	99.3	99.7	100.3	93.7	85.1	95.9	86.8
Fertilizers <sup>2)</sup> . . . . .	65.0	65.1	67.3	67.3	67.3	67.0	68.9	71.9	68.6	70.2
Agricultural dead stock . . . . .	111.1	111.1	111.0	111.0	111.0	111.0	111.2	111.4	111.1	111.6
Finished manufactures ("Konsumgüter")	123.8	123.9	124.1	124.4	124.5	123.5	115.7	110.8	117.3	111.7
Wholesale products in general . . . . .	101.2	100.8	100.8	100.7	100.9	101.1	97.2	92.9	98.4	93.3
<b>England and Wales</b>										
(Ministry of Agriculture and Fisheries)										
Average for corresponding months of 1911-13 = 100										
Agricultural products <sup>2)</sup> . . . . .	117	117	126	119	122	124	114	104	119	111
Feeding stuffs . . . . .	86	88	90	92	92	98	85	85	91	85
Fertilizers . . . . .	89	89	88	88	88	88	91	91	90	90
Wholesale products in general <sup>3)</sup> . . . . .	98.5	100.2	98.9	97.5	98.1	98.4	94.9	95.6	96.3	93.7
<b>Argentina</b>										
(Banco de la Nación Argentina)										
1926 = 100										
Cereals and linseed . . . . .	63.5	64.8	66.7	65.9	65.1	68.8	66.2	55.8	68.1	54.4
Meat . . . . .	80.0	77.8	77.9	78.5	79.1	82.1	75.6	64.1	78.5	65.9
Hides and skins . . . . .	77.3	80.7	77.8	74.4	74.4	75.4	64.6	74.8	71.6	63.9
Wool . . . . .	69.2	70.0	65.4	64.4	65.7	68.0	81.4	58.0	84.3	54.6
Dairy products . . . . .	82.6	75.8	75.0	75.8	75.9	66.8	64.9	55.4	62.3	57.4
Forest products . . . . .	90.4	92.8	92.8	91.9	91.9	84.4	71.6	75.7	73.1	72.5
Total agricultural products . . . . .	68.3	69.2	69.7	69.0	68.5	71.1	68.1	58.8	70.5	56.9
<b>Canada</b>										
(Internal Trade Branch of the Dominion Bureau of Statistics)										
1926 = 100										
Field products (grain, etc) . . . . .	55.1	58.0	59.8	56.4	55.7	55.7	55.5	49.4	53.9	45.7
Livestock and livestock products . . . . .	72.0	74.4	72.9	73.3	72.6	71.0	65.6	57.7	67.6	59.6
Total Canadian farm products . . . . .	61.4	64.1	64.7	62.7	62.0	61.4	59.3	52.5	59.0	51.0
Fertilizers . . . . .	75.8	75.8	75.8	75.8	75.8	75.8	75.4	73.0	76.2	73.8
Consumers' goods (other than food-stuffs, etc) . . . . .	75.7	75.6	75.7	76.1	76.7	76.7	77.5	74.8	77.2	76.0
Wholesale products in general . . . . .	71.5	72.3	72.5	72.0	71.9	71.4	72.1	67.5	71.6	67.2

<sup>1)</sup> For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Reports* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696).

<sup>2)</sup> Revised index-numbers due to the Wheat Act payments and, from 1st September the Cattle Emergency Act payments. —

<sup>3)</sup> Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	June	May	April	March	Feb.	Jan.	June	June	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>United States</b> (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals . . . . .	102	112	115	111	114	115	89	63	93	62
Cotton and cottonseed . . . . .	103	105	103	102	108	108	94	69	99	64
Fruits . . . . .	100	98	105	90	90	87	137	86	100	74
Truck crops (market garden crops) . . . . .	96	127	156	162	188	117	80	111	102	105
Meat animals . . . . .	119	118	117	117	105	96	64	66	68	60
Dairy products . . . . .	100	107	117	114	121	112	93	80	96	82
Poultry and eggs . . . . .	108	110	105	97	119	114	72	58	89	75
Miscellaneous . . . . .	86	89	92	92	101	111	90	69	108	83
Total agricultural products . . . . .	104	108	111	108	111	107	86	71	90	70
Commodities purchased 1) . . . . .	124	127	127	127	127	126	121	103	122	109
Agricultural wages 1) . . . . .	—	—	94	—	—	86	2) 90	2) 78	88	80
<b>United States</b> (Bureau of Labor) 1926 = 100.										
Cereals . . . . .	76.9	83.2	87.9	82.8	87.4	88.8	72.4	57.4	74.5	53.1
Livestock and poultry . . . . .	84.8	87.6	85.9	85.8	78.4	73.3	48.3	46.6	51.5	43.4
Other farm products . . . . .	74.3	75.0	74.5	72.1	76.8	76.6	69.4	56.2	70.5	55.8
Total agricultural products . . . . .	78.3	80.6	80.4	78.3	79.1	77.6	63.3	53.2	65.3	51.4
Agricultural implements . . . . .	93.6	93.6	93.6	93.6	93.6	92.7	91.1	83.0	89.6	83.5
Fertilizer materials . . . . .	65.7	65.9	66.0	66.3	66.2	66.5	67.9	68.0	67.1	65.9
Mixed fertilizers . . . . .	74.5	73.1	72.9	72.8	72.8	73.3	73.4	63.0	72.5	64.5
Cattle feed . . . . .	92.2	107.0	104.9	102.2	109.0	116.2	86.9	55.8	89.4	57.9
Non-agricultural commodities . . . . .	80.0	80.0	79.9	79.5	79.4	78.9	76.9	67.4	76.9	69.0
Wholesale products in general . . . . .	78.9	80.2	80.1	79.4	79.5	78.8	74.6	65.0	74.9	65.9
<b>Finland</b> (Central Bureau of Statistics) 1926 = 100.										
Cereals . . . . .	79	79	79	79	80	80	82	92	82	88
Potatoes . . . . .	88	84	81	81	81	68	47	106	49	77
Fodder . . . . .	67	66	63	63	63	64	69	69	72	72
Meat . . . . .	72	71	76	78	78	76	72	68	71	64
Dairy products . . . . .	77	75	79	78	80	82	70	73	75	75
Total agricultural products . . . . .	75	74	75	75	76	75	71	75	73	74
Wholesale products in general . . . . .	90	90	90	90	90	90	89	89	90	89
<b>Hungary</b> (Central Bureau Statistics) 1913 = 100.										
Agricultural and livestock products . . . . .	75	77	74	73	75	75	68	66	—	—
Wholesale products in general . . . . .	87	86	86	85	86	86	81	79	—	—
<b>Italy</b> (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products . . . . .	359.6	335.1	331.7	324.8	317.9	315.6	293.2	268.1	297.9	280.7
Wholesale products in general . . . . .	314.5	304.4	298.7	289.4	281.5	280.2	274.5	285.0	275.8	283.4
<b>New Zealand</b> (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products . . . . .	79.5	80.2	77.6	87.1	87.6	77.8	75.0	82.9	77.5	84.0
Meat . . . . .	150.2	152.8	162.1	162.5	163.7	162.5	155.3	108.8	152.2	120.7
Wool . . . . .	84.8	77.5	78.3	80.1	78.1	79.5	110.9	62.6	110.0	69.8
Other pastoral products . . . . .	98.5	84.5	86.8	92.1	79.9	76.1	92.3	66.7	80.2	74.5
All pastoral and dairy products . . . . .	100.6	99.1	100.7	105.9	105.2	100.4	105.3	82.5	104.5	88.4
Field products . . . . .	124.7	124.8	129.3	125.7	123.7	126.3	124.3	114.8	120.6	115.8
Total agricultural products . . . . .	101.3	99.9	101.6	106.5	105.7	101.2	104.6	83.4	104.7	89.2

DESCRIPTION	June 1935	May 1935	April 1935	March 1935	Feb. 1935	Jan. 1935	June 1934	June 1933	Year	
									1934-35 2)	1933-34 2)
<b>Norway</b>										
(Kegl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals . . . . .	145	143	144	144	144	141	101	116	126	112
Potatoes . . . . .	257	175	147	153	144	132	116	91	132	103
Pork . . . . .	94	90	93	93	89	88	74	81	83	81
Other meat . . . . .	138	142	140	142	139	141	130	115	137	115
Eggs . . . . .	75	67	79	99	93	82	68	60	92	80
Dairy products . . . . .	138	137	135	134	133	133	130	119	132	126
Concentrated feeding stuffs . . . . .	111	113	117	115	118	120	97	94	109	96
Maize . . . . .	95	99	101	101	108	110	85	85	101	83
Fertilizers . . . . .	78	78	78	77	76	74	88	92	81	87
<b>Netherlands</b>										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products . . . . .	58	56	54	52	54	54	56	36	59	42
Livestock products . . . . .	48	47	49	48	48	49	54	50	53	51
Total agricultural products . . . . .	50	50	50	49	49	50	55	47	55	49
Agricultural wages . . . . .	69	69	71	71	71	71	71	74	74	81
Wholesale products in general 1) . . . .	52.1	52.1	51.4	50.7	52.1	52.8	51.4	49.4	4) 52.8	4) 50.1
<b>Poland</b>										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products . . . . .	37.2	38.9	34.0	33.2	33.9	33.1	38.1	49.6	35.6	41.1
Meat animals . . . . .	32.4	30.9	31.0	31.6	29.8	29.5	35.3	41.1	36.7	42.5
Dairy products and eggs . . . . .	37.5	36.3	39.3	37.7	39.0	40.4	33.0	39.4	41.2	46.7
Products directly sold by farmers . . . .	35.6	35.8	34.0	33.5	33.5	33.3	36.2	44.9	37.0	42.6
Flour and groats . . . . .	36.0	38.2	38.4	37.7	38.4	38.3	38.1	58.5	38.8	47.8
Meat and lard fat . . . . .	37.1	36.0	33.8	34.6	33.5	34.9	42.9	49.0	43.5	49.8
Sugar, alcohol, beer . . . . .	79.3	79.2	79.3	79.1	79.3	85.6	90.0	90.2	88.6	90.3
Products of agricultural industries . . . .	50.6	50.8	50.2	50.2	50.1	52.6	56.8	65.6	56.7	62.4
Total agricultural products . . . . .	43.0	43.2	42.0	41.8	41.7	42.8	46.4	55.1	46.8	52.4
Commodities purchased . . . . .	66.8	66.9	67.0	67.0	67.1	67.8	71.4	72.7	70.6	72.9
Wholesale products in general . . . . .	52.6	52.8	52.2	52.1	52.2	52.7	55.8	60.1	55.8	59.1
<b>Yugoslavia</b>										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products . . . . .	60.1	...	58.9	61.1	60.9	62.9	64.8	61.1	57.4	57.2
Livestock products . . . . .	58.5	...	56.3	55.2	57.1	58.6	54.4	57.8	55.4	57.1
Industrial products . . . . .	65.7	...	65.3	64.8	66.0	65.4	68.5	72.0	67.4	70.8
Wholesale products in general . . . . .	63.9	...	62.9	63.0	63.9	64.4	65.6	66.1	63.2	64.4

1) Calculated by the the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100 — 2) Agricultural year: 1st April-31 March. — 3) Agricultural year: 1st July-30 June — 4) Calendar year.

# RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium	Canada (2)	Denmark	Sweden	Egypt	Spain	Switzerland	United States (3)	France Indo China (4)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czechoslovakia
Germany . . . . .	Reichsmark	1.000	0.561	11.898	0.238	0.889	4.819	1.235	0.403	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	9.648		
Argentina . . . . .	Paper peso	1.782	1.000	21.203	0.424	1.584	8.586	2.200	0.718	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	17.191		
Belgium . . . . .	Franc (2)	0.084	0.047	1.000	0.020	0.075	0.040	0.104	0.034	0.511	0.082	0.114	0.055	0.380	0.040	0.050	0.178	3.347	0.811		
Canada . . . . .	Dollar (3)	4.198	2.356	49.948	1.000	3.731	20.220	5.183	1.693	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	40.501		
Denmark/Sweden . . . .	Crown	1.125	0.631	13.385	0.268	1.000	5.422	1.389	0.454	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	10.854		
Egypt . . . . .	Piastre	0.207	0.116	2.469	0.049	0.184	1.000	0.256	0.083	1.262	0.203	0.283	0.135	0.939	0.099	0.123	0.441	8.264	2.002		
Spain/Switzerland . . . .	Peseta/Fr.	0.810	0.455	9.638	0.193	0.720	3.903	1.000	0.327	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	7.815		
United States . . . . .	Dollar (4)	2.479	1.391	29.500	0.591	2.204	11.948	3.061	1.000	15.074	2.427	3.377	1.618	11.221	1.185	1.469	5.265	98.737	23.920		
France/Indo-China (5)	Franc	0.164	0.092	1.957	0.039	0.146	0.793	0.203	0.066	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.587		
Great Britain . . . . .	Stilling	1.021	0.573	12.154	0.243	0.908	4.923	1.261	0.411	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	9.856		
Hungary . . . . .	Pengo	0.734	0.412	8.736	0.175	0.653	3.580	0.905	0.296	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	7.084		
India . . . . .	Rupee	1.532	0.860	18.231	0.365	1.362	7.384	1.892	0.618	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	14.783		
Italy . . . . .	Lira	0.221	0.124	2.629	0.053	0.196	1.065	0.273	0.090	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	2.131		
Japan . . . . .	Yen	2.092	1.174	24.897	0.498	1.860	10.084	2.583	0.843	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	20.189		
Netherlands . . . . .	Florin	1.687	0.947	20.077	0.402	1.450	8.132	2.083	0.681	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	16.280		
Poland . . . . .	Zloty	0.471	0.264	5.603	0.112	0.419	2.269	0.581	0.190	2.863	0.461	0.641	0.3071	2.131	0.225	0.279	1.000	18.755	4.543		
Romania . . . . .	Leu	0.025	0.014	0.299	0.006	0.022	0.121	0.031	0.010	0.153	0.025	0.034	0.016	0.114	0.012	0.015	0.053	1.000	0.242		
Czechoslovakia . . . . .	Crown (6)	0.103	0.068	1.233	0.025	0.092	0.499	0.128	0.042	0.630	0.102	0.141	0.067	0.469	0.049	0.062	0.220	4.127	1.000		

(1) Each quotation shows the par-value of the monies named in the column headed "Unit of currency" calculated in terms of the currency of the Countries printed in the heading. — (2) From 31. March 1935 the franc represents only 75 % of its previous gold value. — (3) Till 31. January 1934 also parity of the United States. — (4) New parity as from 31. January 1934. — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only 1/4 of its previous gold value.

# MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

## CEREALS

*Wheat* — The official figures of international trade in wheat in June 1935 are now available for all the leading exporting countries. They show for that month a further and very large decrease in the volume of world exports, following that of May. The good crop prospects in June both in North American and in European countries and the consequent weakness of prices induced the importing countries to confine their purchases to the strict minimum and to satisfy their needs as far as possible with internal supplies until the statistical position of supplies and requirements in the new season could become more precise. Thus exports fell in June to an extremely low level and it can already be stated, on the

### *World net exports of wheat (including flour in terms of wheat)*

(Million bushels)

Months	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August . . . . .	52	45	41	66	77	71
September . . . . .	41	51	48	78	74	57
October . . . . .	50	46	62	74	84	60
November . . . . .	43	41	54	67	77	51
December . . . . .	38	51	60	64	59	50
January . . . . .	43	48	62	62	54	48
February . . . . .	41	44	64	73	70	45
March . . . . .	48	50	64	74	67	50
April . . . . .	39	35	40	70	62	42
May . . . . .	47	44	52	67	81	50
June . . . . .	31	45	42	59	67	51
July . . . . .	...	46	44	45	52	53
Total August-June . . . .	473	500	591	754	772	575
Total Season . . . 1)	570	546	633	799	824	628

1) Estimate March 1935, probably rather high.

basis of the early information that has reached the Institute, that those in July are of the same order. It is confirmed, therefore, that the total world demand in the 1934-35 season, which ended on 31 July, will be appreciably smaller than that expected by all the most authoritative bodies; it may as from now be estimated at from 500 to 510 million bushels. a total about 40 million less than the already small one of last season.

The net imports of the European importing countries in June were scarcely 28 million bushels and on the average of the first eleven months of the season only 30 million bushels, against the average of 33 million in 1933-34; there is therefore a diminution this year of 10 % on the already greatly reduced total of

*Net imports of wheat into Europe (including flour in terms of wheat).*

(Million bushels)

Months	Season 1934-35			Season 1933-34		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European Countries	Total Europe
August. . . . .	18	14	32	19	15	34
September . . . . .	20	16	36	22	13	35
October . . . . .	18	13	31	23	14	37
November. . . . .	17	12	29	22	13	35
December. . . . .	20	12	32	18	10	28
January. . . . .	12	10	22	14	10	24
February. . . . .	16	10	26	16	11	27
March . . . . .	20	11	31	22	15	37
April. . . . .	17	10	27	21	13	34
May . . . . .	22	10	32	20	14	34
June. . . . .	18	10	28	19	14	33
July. . . . .	...	...	...	21	14	35
Total August-June. . . . .	198	128	326	216	142	358
Total season . . . . .	1) 225	1) 165	1) 390	237	156	393

1) Estimate March 1935, probably rather high

last year. It may now be estimated that the demand from the European importing countries did not for the entire 1934-35 season reach a total of more than 355 to 360 million bushels and that it accordingly remains from 35 to 40 million smaller than that of the preceding season.

For the season that opened on 1 August the information on crops and consequent trade prospects may be summarized as follows.

In Europe July and the first half of August were not very conducive to satisfactory development of wheat but favoured the harvesting and bringing in of the crop. The very hot and dry weather that prevailed during this period led in general to premature ripening and unit-yields have somewhat suffered from

this almost everywhere. The results of the first threshings were in many parts disappointing. Storms and rains were much less frequent than usual so that it was possible to carry out harvesting and threshing without serious hindrance; hail caused on the whole less damage than normal.

The provisional estimates of the crop have been communicated to the Institute by eighteen countries, responsible for about three-quarters of the total European production, not including that of the U. S. S. R. Four of these countries indicate a crop practically equivalent to that obtained in 1934, six indicate a crop distinctly smaller and eight a crop appreciably larger. On the whole the increases exceed the decreases so that in all the crop in these countries appears to be 70 million bushels larger than last year and 60 million larger than the average. Amongst the countries that have not yet estimated their production the principal producers are France, Poland and Czechoslovakia; for France production is expected to be distinctly smaller than it was last year but little below the average; for Poland a good crop, practically the same as that of last year is expected and for Czechoslovakia a large one, distinctly above that of 1934 and a little above the average.

Last June we calculated that European production in 1935 would be around 1,580 million bushels, of which 1,175 million would represent that in the importing countries and 405 million that in the exporting countries, namely the four Danubian countries, together with Poland and Lithuania. In July, in view of the somewhat favourable weather between the middle of June and that of July, we estimated that the June forecast would have to be increased by from 20 to 40 million bushels in order to reflect the improvement that had been intimated in crop prospects. In the last month, from the middle of July to the middle of August, the weather has not been very favourable and it seems likely that its influence on the crop will have cancelled the improvement of the preceding month or even brought a slight reduction in the June estimate. Owing to the provisional and conjectural character of the various estimates it seems necessary to leave unchanged the figure of 1,580 million bushels given in June, all the more because a calculation based on the most recent elements, without quite reaching this total, is very near it.

The provisional data of the area cultivated for wheat and the probable production in Europe in 1935 are given below along with those for the ten preceding years.

*Production of wheat in Europe.*

Years	Area (thousand acres)	Production (million bushels)	Unit-yield (bushels per acre)
1935 (estimate)	78,600	1,580	20.1
1934	77,300	1,536	19.9
1933	77,800	1,747	22.5
1932	75,400	1,492	19.8
1931	75,900	1,436	18.9
1930	73,000	1,360	18.4
1929	70,200	1,450	20.7
1928	71,400	1,409	19.8
1927	71,200	1,274	17.8
1926	69,900	1,216	17.4
1925	69,700	1,404	20.1



If the final figures confirm the present estimate the European crop will be the largest so far obtained, excepting the record crop of 1933; it would thus exceed that of last year by about 45 million bushels and the average of 1929-33 by 80 million bushels.

Total production of the European importing countries, which we estimate at from 1,160 to 1,180 million bushels, would appear to be slightly smaller than was obtained last year, when the total was 1,200 million bushels. The reduction with respect to 1934 in this group of countries is due in large part to the mediocre results in France, Spain and Portugal, which together show a probable diminution of about 90 million bushels with respect to last year; it should be noted that in these three countries there remain large quantities from the preceding crop, which, despite the mediocre production, amply ensure that internal requirements in the season just opened will be met. There are also large stocks, exceeding the normal carry-over, in Sweden, Czechoslovakia and some Baltic countries, where crops are reported to be average or even abundant. In the other countries, on the other hand, the stocks carried over into the present season appear to be less than the normal and in some cases very appreciably reduced; in the majority of these countries, in Italy, Germany, Greece and Austria, for instance, the new crops appear to be much larger than last year.

The four Danubian countries, Poland and Lithuania, which form the group of European exporting countries, have had crops exceeding those of last year by about 55 million bushels. The greatest part of this increase comes from Romania, where the wheat area was considerably extended, and, to a less degree, from Bulgaria and Hungary; for the other countries the changes with respect to last year are less important.

In the Soviet Union the weather continued to favour spring wheat, the rains in the middle of July having been very beneficial to grain-formation, and an abundant production of both winter and spring wheat is expected, though some delay is reported in harvesting and threshing, a delay that may involve an appreciable loss of grain. There are thus prospects of a crop much larger than that of last year and possibly even of the same order as that of 1933, which was the largest recorded for the Soviet Union. Sufficient elements are not yet available to enable even an approximate evaluation to be made of the surplus exportable from the new crop but, if the information on the abundance of the 1935 crop is confirmed, the surplus to be placed on the international market may attain dimensions much larger than the 15 to 20 million bushels at present adopted by commercial circles.

As regards North America the good prospects of the past month have undergone a drastic change; a severe spread of rust that occurred toward the end of July, particularly in Manitoba and Saskatchewan and the northern Spring Wheat States of the United States, and in addition the dryness in part of Saskatchewan and the early frosts of mid-August in Alberta have brought about a disastrous reduction in unit-yields and quality of spring wheat in two great producing countries.

The estimates published at the beginning of August and appearing in the table on page 581 do not take into account for Canada and in part for the United

## Cereal production.

COUNTRY	BRITISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934	Average
	Thousand centals			Thousand bushels			= 100	= 100
	WHEAT							
Germany . . . . .	102,683	99,926	96,910	171,135	166,539	161,514	102.8	106.0
Austria . . . . . w)	9,072	7,685	7,130	15,120	12,809	11,884	118.0	127.2
Belgium . . . . .	8,269	8,593	8,487	13,782	14,322	14,144	96.2	97.4
Bulgaria . . . . .	37,313	24,947	30,951	62,188	41,577	51,584	149.6	120.6
Spain . . . . .	89,722	104,162	90,939	149,533	173,600	151,562	86.1	98.7
Estonia . . . . . w)	522	818	436	871	1,363	727	63.9	119.9
Finland . . . . .	2,050	1,968	803	3,417	3,280	1,339	104.2	255.2
Engl. and Wales . . . . .	35,302	39,155	26,795	58,837	65,259	44,658	90.2	131.8
Scotland . . . . .	2,448	2,486	1,416	4,080	4,144	2,359	98.5	172.9
Greece . . . . .	18,519	15,407	9,339	30,864	25,679	15,565	120.2	198.3
Hungary . . . . .	44,423	38,895	47,124	74,037	64,824	78,538	114.2	94.3
Italy . . . . .	168,365	139,658	154,812	280,602	232,758	258,014	120.6	108.8
Luxemburg . . . . .	566	703	341	944	1,171	568	80.6	166.2
Netherlands . . . . .	9,559	10,825	5,573	15,932	18,042	9,287	88.3	171.5
Portugal . . . . .	9,540	14,814	9,206	15,900	24,690	15,342	64.4	103.6
Romania . . . . .	61,068	45,933	64,853	101,778	76,553	108,086	133.0	94.2
Switzerland 1) . . . . .	4,586	4,007	3,380	7,643	6,677	5,633	114.5	135.7
Yugoslavia . . . . .	40,786	40,998	50,898	67,975	68,328	84,828	99.5	80.1
Totals . . . . .	644,793	600,980	609,393	1,074,638	1,001,615	1,015,632	107.3	105.8
Canada . . . . . w)	7,960	4,034	10,331	13,267	6,724	17,219	197.3	77.0
United States . . . . . s) 2)	190,158	161,475	202,245	316,930	269,125	337,075	117.8	94.0
United States . . . . . w)	259,200	243,600	343,717	432,000	406,000	572,861	106.4	75.4
United States . . . . . s)	105,600	54,861	126,547	176,000	91,435	210,912	192.5	83.4
Totals . . . . .	562,918	463,970	682,840	938,197	773,284	1,138,067	121.3	82.4
Chosen . . . . .	5,375	5,561	5,361	8,957	9,268	8,935	96.6	100.3
India . . . . .	217,818	210,874	210,112	363,029	351,456	350,187	103.3	103.7
Japan . . . . .	29,453	28,597	20,187	49,087	47,660	33,645	103.0	145.9
Turkey . . . . .	54,058	53,129	56,079	90,094	88,546	93,463	101.7	96.4
Totals . . . . .	306,704	298,161	291,739	511,167	496,930	486,230	102.9	105.1
Algeria . . . . .	19,202	26,117	18,316	32,003	43,528	30,526	73.5	104.8
Egypt . . . . .	25,933	22,366	26,831	43,221	37,276	44,718	115.9	96.7
French Morocco . . . . .	10,673	23,351	16,767	17,787	38,918	27,944	45.7	63.7
Tripolitania . . . . .	106	139	79	176	231	132	76.2	133.3
Tunisia . . . . .	10,362	8,267	7,597	17,269	13,779	12,662	125.3	136.4
Totals . . . . .	66,276	80,240	69,950	110,456	133,732	115,982	82.6	95.2
GRAND TOTALS . . . . .	1,580,691	1,443,351	1,653,562	2,634,458	2,405,561	2,755,911	109.5	95.6
RYE								
Germany . . . . .	173,207	167,720	174,628	309,300	299,501	311,837	103.3	99.2
Austria . . . . .	12,390	12,282	12,010	22,125	21,932	21,447	100.9	103.2
Belgium . . . . .	10,783	11,649	12,012	19,255	20,802	21,449	92.6	89.8
Bulgaria . . . . .	5,170	3,682	5,524	9,232	6,576	9,865	140.4	93.6
Spain . . . . .	13,549	12,419	12,565	24,194	22,176	22,438	109.1	107.8
Estonia . . . . .	3,616	5,076	4,064	6,456	9,064	7,258	71.2	89.0
Finland . . . . .	7,584	8,705	7,139	13,543	15,545	12,748	87.1	106.2
Greece . . . . .	1,698	1,381	1,105	3,031	2,466	1,974	122.9	153.6
Hungary . . . . .	14,976	13,653	16,739	26,743	24,381	29,891	109.7	89.5
Italy . . . . .	3,475	3,140	3,652	6,205	5,607	6,522	110.7	95.1
Luxemburg . . . . .	260	307	258	465	548	461	84.8	100.9
Netherlands . . . . .	9,226	11,081	8,604	16,476	19,788	15,365	83.3	107.2
Romania . . . . .	8,708	4,653	8,241	15,551	8,308	14,717	187.2	105.7
Switzerland . . . . .	772	695	835	1,378	1,242	1,491	111.0	92.4
Yugoslavia . . . . .	4,630	4,305	4,670	8,267	7,688	8,339	107.5	99.1
Totals . . . . .	270,044	260,748	272,046	482,221	465,624	485,802	103.6	99.3
Canada . . . . . w)	6,179	2,411	4,494	11,034	4,305	8,024	256.3	137.5
United States . . . . .	29,232	8,982	19,694	52,200	16,040	35,167	325.4	148.4
Totals . . . . .	35,411	11,393	24,188	63,234	20,345	43,191	310.8	146.4
Turkey . . . . .	6,191	6,815	6,953	11,055	12,169	12,416	90.8	89.0
Algeria . . . . .	14	25	23	25	45	41	55.8	61.6
GRAND TOTALS . . . . .	311,660	278,981	303,210	556,535	498,183	541,450	111.7	102.8

\* St. &amp; Engl.

COUNTRY	BRITISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934 = 100	Average = 100
	Thousand centals			Thousand bushels				
BARLEY								
Germany . . . . .	74,650	70,634	69,410	155,524	147,156	144,607	105.7	107.5
Austria . . . . .	6,001	6,495	5,998	12,502	13,531	12,497	92.4	100.0
Belgium . . . . .	2,346	2,320	1,919	4,887	4,833	3,998	101.1	122.2
Bulgaria . . . . .	7,266	4,090	7,184	15,139	8,522	14,966	177.6	101.2
Spain . . . . .	41,024	61,996	50,358	85,469	129,161	104,914	66.2	81.5
Estonia . . . . .	2,370	2,533	2,480	4,939	5,277	5,167	93.6	95.6
Finland . . . . .	4,255	4,600	3,653	8,865	9,583	7,611	92.5	116.5
Engl. and Wales . . . . .	13,955	16,285	17,499	29,073	33,927	36,456	85.7	79.7
Greece . . . . .	5,049	4,316	3,759	10,518	8,992	7,831	117.0	134.3
Hungary . . . . .	12,663	11,992	14,640	26,383	24,983	30,501	105.6	86.5
Italy . . . . .	4,491	4,472	5,386	9,356	9,318	11,221	100.4	83.4
Luxemburg . . . . .	86	89	129	179	185	268	96.7	66.9
Netherlands . . . . .	2,445	2,182	1,643	5,094	4,546	3,422	112.0	148.9
Romania . . . . .	24,471	19,210	43,553	50,983	40,021	90,737	127.4	56.2
Switzerland . . . . .	220	224	280	459	467	583	98.4	78.8
Yugoslavia . . . . .	8,157	9,038	9,095	16,994	18,829	18,948	90.3	89.7
Totals . . . . .	209,449	220,476	236,986	436,364	459,331	493,727	95.0	88.4
Canada . . . . .	42,725	30,596	43,103	89,010	63,742	89,798	139.6	99.1
United States . . . . .	137,760	56,640	119,079	287,000	118,000	248,081	243.2	115.7
Totals . . . . .	180,485	87,236	162,182	376,010	181,742	337,879	206.9	111.3
Chosen . . . . .	25,398	23,097	20,455	52,913	48,120	42,616	110.0	124.2
Japan . . . . .	37,138	34,324	36,771	77,371	71,509	76,607	108.2	101.0
Turkey . . . . .	28,468	41,429	33,553	59,310	86,311	69,904	68.7	84.8
Totals . . . . .	91,004	98,850	90,779	189,594	205,940	189,127	92.1	100.2
Algeria . . . . .	13,669	21,482	16,569	28,477	44,755	34,519	63.6	82.5
Egypt . . . . .	5,021	4,336	5,200	10,461	9,033	10,834	115.8	96.6
French Morocco . . . . .	12,782	33,516	23,174	26,631	69,826	48,279	38.1	55.2
Tripolitania . . . . .	1,213	661	650	2,526	1,378	1,355	183.3	186.4
Tunisia . . . . .	8,819	3,307	4,630	18,372	6,890	9,645	266.7	190.5
Totals . . . . .	41,504	63,302	50,223	86,467	131,882	104,632	65.6	82.6
GRAND TOTALS . . . . .	522,442	469,864	540,170	1,088,435	978,895	1,125,365	111.2	96.7
OATS								
Germany . . . . .	118,864	120,204	144,830	371,449	375,634	452,591	98.9	82.1
Belgium . . . . .	14,575	15,083	15,853	45,546	47,135	49,539	96.6	91.9
Bulgaria . . . . .	2,873	1,610	2,559	8,977	5,032	7,997	178.4	112.2
Spain . . . . .	10,991	16,630	15,083	34,348	51,969	47,133	66.1	72.9
Estonia . . . . .	3,119	3,518	3,163	9,747	10,994	9,885	88.7	98.6
Finland . . . . .	15,278	17,115	13,720	47,744	53,485	42,875	89.3	111.4
Engl. and Wales . . . . .	24,573	24,998	29,474	76,790	78,120	92,106	98.3	83.4
Greece . . . . .	2,822	2,172	2,012	8,818	6,787	6,289	129.9	140.2
Hungary . . . . .	4,890	5,718	6,787	15,281	17,869	21,210	85.5	72.0
Italy . . . . .	11,372	10,803	13,164	35,537	33,758	41,137	105.3	86.4
Luxemburg . . . . .	950	1,002	1,012	2,970	3,133	3,164	94.8	93.9
Netherlands . . . . .	5,955	6,337	6,728	18,608	19,803	21,024	94.0	88.5
Romania . . . . .	14,771	12,418	20,438	46,159	38,806	63,867	118.9	72.3
Switzerland . . . . .	463	449	806	1,447	1,404	2,517	103.0	57.5
Yugoslavia . . . . .	6,173	7,351	6,794	19,290	22,972	21,231	84.0	90.6
Totals . . . . .	237,669	245,408	282,423	742,711	766,901	882,565	96.8	84.2
Canada . . . . .	141,506	109,181	117,865	442,207	341,190	368,327	129.6	120.1
United States . . . . .	379,840	168,320	352,048	1,187,000	526,000	1,100,151	225.7	107.9
Totals . . . . .	521,346	277,501	469,913	1,629,207	867,190	1,468,478	187.9	110.9
Turkey . . . . .	5,664	3,185	3,279	17,699	9,954	10,247	177.8	172.7
Algeria . . . . .	2,183	3,804	3,710	6,821	11,889	11,594	57.4	58.8
French Morocco . . . . .	439	606	677	1,371	1,894	2,115	72.4	64.8
Totals . . . . .	2,622	4,410	4,387	8,192	13,783	13,709	59.4	59.7
GRAND TOTALS . . . . .	767,301	530,504	760,002	2,397,809	1,657,828	2,374,999	144.6	101.0

w) Winter crop. — s) Spring crop — i) Including spelt and meslin — 2) Conjectural estimate based on crop condition on 31 July, for wheat the damage undergone in August has greatly lowered the estimate.

States this change in the situation, since they are based on crop condition at the beginning of August; the next official report based on crop condition on 1 September must be awaited to enable the seriousness and extent of the losses and the approximate volume of the crop to be established, especially for Canada. The estimate made on 1 August of the spring wheat crop in the United States involved a reduction of about one-third on that of a month previously, the decrease amounting to 97 million bushels; at the same time the estimate of winter wheat production has been reduced by 26 million. With the damage registered in August the total volume of wheat production in the United States this year threatens to be such as will not cover the requirements of internal consumption, as happened in the past season, so that it would be necessary again to draw on stocks, which, though reduced, still offered on 1 July a margin of 67 million bushels over the minimum carryover.

As regards Asia the final forecast of India brings only a small decrease of 4 million bushels on the preceding estimate. Fairly satisfactory results are indicated for the Levantine countries, Turkey, Syria and Palestine having had a crop practically equivalent to that of last year, despite the damage caused in several areas by drought and blasting. In the Far East the Japanese crop is confirmed to be abundant and that of Manchuria gives grounds for expecting good yields; that of Chosen is average. The production of China seems, on the other hand, to be smaller than it was last year, when the crop was satisfactory; recent serious floods have compromised a large part of the rice crop.

Production in North Africa may be assumed, consequent on the poor crop in Morocco, to be about 20 % less than in 1934 and even slightly below the average.

Summarizing the present outlook as determined by the information reaching the Institute, it may be said that the northern hemisphere, not including the U. S. S. R. and China, will give a crop of from 3,000 to 3,100 million bushels; this total would exceed the extremely small one of 1934 by only 100 to 150 million bushels and would be distinctly below the 1929-33 average of 3,320 million bushels.

If the 1935 crop in the northern hemisphere appears to be rather poor, the first stages of that in the southern hemisphere offer a no more satisfactory prospect. In Australia sowings were carried out late owing to drought and germination was unsatisfactory. Between the middle of July and the middle of August general rains fell almost everywhere, greatly to the benefit of sowing, but they were not sufficiently heavy to ensure good development of the crop in Western Australia and in a large part of South Australia and in mid-August the need of rain was acutely felt in these areas. The area under wheat does not appear to be substantially different from last year's figure.

In Argentina the drought that has prevailed for several months, especially in the centre and north of the wheat belt, greatly hindered preparation of the land and sowings and the latter were late over a great part of the area. There has consequently been a heavy fall in the wheat area and it is expected that sowings will be smaller than last year; the press foresees a reduction of 25 % and even 30 % on those of last season but such percentages do not seem very likely. The insufficiency of rain in July and the first half of August led to irregular germina-

tion; crop condition in mid-August was mediocre and rains were wanted urgently throughout the wheat belt.

On the whole present prospects indicate for the two great producing countries of the southern hemisphere a production below the average.

Taken together with the rather unsatisfactory results obtained in the northern hemisphere, the mediocre prospects that appear in the southern hemisphere make it seem likely that world production this year will not suffice to cover consumption requirements and that it will be necessary during the present season once more to have recourse to stocks of old wheat, as was the case during the season just ended.

The estimates of quantities of old wheat existing on 1 August 1935 in the exporting countries and afloat, according to the most recent information, brought together in the following table, indicate that during the 1934-35 season the burden of stocks, still very heavy at the beginning of that season, underwent a very appreciable reduction, estimated at about 200 million bushels and equivalent to about 30 % of the total.

*Stocks of old crop wheat on 1 August.*

(million bushels)

COUNTRIES	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
United States 1)	116	141	152	273	325	352	416	412	306	172
Canada 2)	40	56	92	128	128	140	136	212	203	213
Argentina 3)	48	49	68	109	35	49	33	50	88	50
Australia 3)	12	24	26	29	38	49	38	43	73	47
Afloat	39	46	45	37	39	38	30	32	34	18
<i>Total</i>	<i>255</i>	<i>316</i>	<i>383</i>	<i>576</i>	<i>565</i>	<i>628</i>	<i>653</i>	<i>749</i>	<i>704</i>	<i>500</i>

1) Stocks on 1 July, including flour in the city mills expressed in terms of grain and including also domestic wheat in store in Canada — 2) Including domestic wheat in store in the U. S. A — 3) Exportable quantities on 1 August.

Despite this great decrease the volume of stocks remaining on 1 August 1935 was still much larger than that normally recorded before the 1929 crisis. In order to estimate *grosso modo* the probable size of the further deduction expected for the present season in consequence of the smallness of the 1935 crop, it is necessary to sketch the balance of available supplies and requirements of wheat. Being based on incomplete elements and on numerous hypotheses and conjectures, due especially to the uncertainty that still characterizes the results of the North American and Soviet crops, to say nothing of those in the southern hemisphere, as yet far from harvest-time, such a balance must be accepted only as a very crude calculation for purely indicative purposes.

*Surpluses exportable from the 1935 crop.* — We estimate the exportable surpluses as follows in millions of bushels: Canada 150-180; Argentina and Australia 160-180; U. S. S. R., Danubian countries, North Africa and others 90-120; a total of 400-480 million bushels.

*Import requirements in 1935-36.* — The European demand may be estimated at between 350 and 370 million bushels and that of extra-European countries at 150 to 170 million, giving a total of from 500 to 540 million bushels. The deficiency of the 1935 exportable surplus with respect to import requirements in 1935-36 to be covered by drawing on the stocks existing on 1 August 1935 therefore oscillates between a minimum of 20 million and a maximum of 140 million bushels and would average 80 million bushels.

As regards the other cereals prospects may be summarized as follows.

*Rye.* — European production is abundant despite the dry and very hot weather of July and the first half of August, which hastened maturity in many areas. The crop will be larger than that of 1934, which was a year of very good production, and also above the 1929-33 average. North American production, which is of little importance, would also appear to be relatively large.

*Barley.* — The total production of European countries is only mediocre, owing to the poor crop in Spain and Romania. For the latter country the crop distinctly exceeds that of last year, which was very poor, but remains much below the average. In North America the crop, though reduced by the bad weather of July, distinctly exceeds the small one of 1934 and is practically equivalent to the average. In Asia the Far Eastern countries have had good results but in the Near East, especially Turkey, and in North Africa, especially Morocco, the crop is a small one.

*Oats.* — European production appears to be practically the same as last year but that of North America is much larger.

G. CAPONE.

*Germany:* July was characterized by rather variable weather with some cold days and overcast sky, rain was, however, insufficient, Crop condition on 1 August was rather below that of a month previously but better than on 1 August 1934

According to the most recent estimate production of spelt this year is about 2,695,000 centals against 3,163,000 in 1934 and 3,252,000 on the average of the five years ending 1933; percentages 85.2 and 82.9.

*Austria:* Winter wheat was brought in in good conditions. Production was larger than last year thanks especially to the favourable weather. Spring wheat was harvested in the lowlands; in many cases it suffered from blasting. The winter rye crop was better south of the Danube than north. Grain-formation of spring rye was favourable in the Alpine districts while to the north of the Danube it was less satisfactory.

This year more interest than usual is being taken in winter barley which has given good results in Lower Austria, in Styria, however, production is smaller. Spring barley ripened too rapidly, especially on the lighter lands, but the grain is well formed and has a good colour. Oats ripened everywhere too early owing to the drought, the straw is small and grain-formation leaves much to be desired.

### Area and Crop Condition.

COUNTRIES	AREA SOWN					CROP CONDITION (†)													
	1935	1934	Average 1929 to 1933	% 1935															
				1934 = 100	Aver = 100	I-VIII-1935			I-VII-1935			I-VIII-1934							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
Thousand acres																			
WHEAT																			
Germany . . . . .	5,145	5,431	5,015	94.7	102.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Austria . . . . .	579	548	502	105.6	115.4	2.1	—	—	1.9	—	—	—	—	—	—	2.6	—	—	—
Bulgaria . . . . .	386	385	381	100.2	101.3	2.5	—	—	2.2	—	—	—	—	—	—	2.4	—	—	—
*Denmark . . . . .	3,037	3,057	2,988	99.3	101.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spain . . . . .	136	280	255	—	—	—	—	99	—	—	—	—	—	—	—	—	—	96	—
Estonia . . . . .	11,063	11,039	11,084	100.2	99.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Finland . . . . .	52	55	37	95.0	140.4	—	—	87	—	—	82	—	—	—	—	—	—	—	—
France 1) . . . . .	136	125	53	108.9	257.1	—	100	—	—	—	—	—	—	—	—	—	—	—	—
Engl and Wales . . . . .	13,091	12,863	12,612	101.8	103.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scotland . . . . .	143	339	370	42.3	38.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Greece . . . . .	1,771	1,759	1,364	100.7	129.8	—	—	—	100	—	—	—	—	—	—	—	—	—	—
Hungary . . . . .	101	98	57	103.5	177.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Italy . . . . .	2,020	1,957	1,479	103.2	136.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Latvia . . . . .	4,005	3,799	3,925	105.4	102.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania . . . . .	12,395	12,238	12,074	101.3	102.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luxemburg . . . . .	207	210	146	99.0	142.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
*Norway . . . . .	521	514	500	101.4	104.2	117	—	—	117	—	—	117	—	—	—	117	—	—	—
Netherlands . . . . .	40	40	27	100.0	149.4	2.4	—	—	1.9	—	—	2.0	—	—	—	—	—	—	—
Poland . . . . .	377	366	216	102.9	174.2	—	94	—	—	96	—	—	—	—	—	—	—	96	—
Romania . . . . .	3,794	3,774	3,763	100.5	100.8	—	—	—	3.5	2) 72	—	—	—	—	—	—	—	—	—
*Sweden . . . . .	607	609	345	99.4	175.7	—	—	—	3.5	—	—	—	—	—	—	—	—	—	—
Switzerland . . . . .	8,518	7,610	7,535	111.9	113.1	—	—	—	f)	d)	—	—	—	—	—	—	—	—	—
Czechoslovakia . . . . .	718	718	690	—	—	—	—	—	2) 3.0	—	—	—	—	—	—	—	—	—	—
Yugoslavia . . . . .	211	211	180	100.0	117.3	—	—	—	110	—	—	—	—	—	—	—	—	96	—
Total Europe . . . . .	2,172	2,099	1,995	103.5	108.9	—	—	—	2.2	—	—	—	—	—	—	—	—	—	—
U. S. S. R. . . . .	215	230	91	93.6	236.0	—	—	—	2.8	—	—	—	—	—	—	—	—	—	—
Canada . . . . .	5,354	5,081	5,184	105.4	103.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
United States . . . . .	75,940	74,437	71,923	102.0	105.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total America . . . . .	31,836	29,893	24,987	106.5	127.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
India 8) . . . . .	6) 555	3) 426	3) 658	130.4	84.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Japan . . . . .	7) 22,808	3) 23,559	3) 25,278	96.8	90.2	—	—	—	—	—	96	—	—	—	—	—	—	—	—
Syria and Lebanon . . . . .	6) 31,389	3) 32,968	3) 37,780	95.2	83.1	—	—	81	—	—	97	—	—	—	—	—	—	63	—
*Turkey . . . . .	6) 20,837	3) 9,281	3) 19,841	224.5	105.0	—	—	—	85.1	—	73.0	—	—	—	—	—	—	30.4	—
Total Asia . . . . .	75,589	66,234	83,557	114.1	90.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Algeria . . . . .	34,485	35,992	32,516	95.8	106.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cyrenaica . . . . .	1,626	1,589	1,280	102.3	127.0	—	f)	—	—	—	—	—	—	—	—	—	—	—	g)
Egypt . . . . .	1,288	1,175	1,170	109.7	110.1	—	—	—	100	—	—	—	—	—	—	—	—	—	98
French Morocco . . . . .	w) 5,482	6,871	7,385	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tripolitania . . . . .	37,399	38,756	34,966	96.5	106.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tunisia . . . . .	4,077	4,068	3,839	100.2	106.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Africa . . . . .	52	22	20	233.3	257.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL . . . . .	1,463	1,442	1,595	101.5	91.8	—	—	—	107	—	—	—	—	—	—	—	—	—	—
	3,210	3,018	2,885	106.4	111.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	30	25	22	120.0	133.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	1,829	1,903	1,952	96.1	93.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10,661	10,478	10,313	101.8	103.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	199,589	189,905	200,759	105.1	99.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	231,425	219,798	225,746	105.3	102.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—





COUNTRIES	AREA SOWN						CROP CONDITION (†)											
	1935	1934	Average 1929 to 1933	% 1935														
				1934 = 100	Aver = 100	I-VIII-1935			I-VII-1935			I-VIII-1934						
						a)	b)	c)	a)	b)	c)	a)	b)	c)				
Thousand acres																		
Canada . . . . .	7) 3,798	3) 3,612	3) 4,538	105.1	83.7	—	—	93	—	—	98	—	—	68				
United States . . . . .	6) 12,957	3) 7,095	3) 12,194	182.6	106.3	—	—	74.6	87.6	—	—	—	—	40.3				
Total America . . . . .	16,755	10,707	16,732	155.8	100.1	—	—	—	—	—	—	—	—	—				
Japan . . . . .	1,919	1,860	2,088	103.2	91.9	—	f)	—	—	f)	—	c)	—	—				
Syria and Lebanon . . . . .	715	611	810	117.0	88.3	—	—	—	100	—	—	100	—	—				
*Turkey . . . . .	w) 2,190	3,294	3,417	—	—	—	—	—	—	—	—	—	—	—				
Total Asia . . . . .	2,634	2,471	2,898	106.6	90.9	—	—	—	—	—	—	—	—	—				
Algeria . . . . .	3,094	3,131	3,431	98.8	90.2	—	—	—	—	—	—	—	—	—				
Cyrenaica . . . . .	151	110	84	137.4	178.8	—	—	—	—	—	—	—	—	—				
Egypt . . . . .	281	284	342	98.7	82.1	—	—	—	—	—	—	—	—	—				
French Morocco . . . . .	3,988	3,844	3,344	103.8	119.3	—	—	—	—	—	—	—	—	—				
Tripolitania . . . . .	272	247	282	110.0	96.5	—	—	—	—	—	—	—	—	—				
Tunisia . . . . .	1,532	988	1,221	155.0	125.4	—	—	—	—	—	—	—	—	—				
Total Africa . . . . .	9,318	8,604	8,704	108.3	107.1	—	—	—	—	—	—	—	—	—				
GRAND TOTAL . . . . .	53,212	46,860	54,055	113.6	98.4	—	—	—	—	—	—	—	—	—				
OATS																		
Germany . . . . .	6,939	7,773	8,317	89.3	83.4	—	—	—	2.8	—	—	—	—	—				
*Austria . . . . .	743	759	84	96.6	98.7	—	2.9	—	2.4	—	—	2.4	—	—				
Belgium . . . . .	710	735	720	96.6	98.7	—	—	—	—	—	—	—	—	g)				
Bulgaria . . . . .	264	312	328	84.5	80.4	—	—	—	—	—	—	—	—	—				
*Denmark . . . . .	943	960	960	101.0	101.0	101	—	—	—	—	—	—	—	85				
Spain . . . . .	1,619	1,877	1,917	86.3	84.5	—	—	—	—	—	—	—	—	—				
Finland . . . . .	1,171	1,173	1,106	99.9	105.9	—	—	f)	—	—	—	—	—	g)				
France 1) . . . . .	2,169	1,983	2,117	109.4	102.5	—	—	—	—	—	—	—	—	—				
2) . . . . .	6,024	6,091	6,413	98.9	93.9	—	—	—	—	—	—	—	—	—				
Engl. and Wales . . . . .	1,416	1,402	1,672	101.0	84.7	—	—	—	—	—	—	—	—	—				
Scotland . . . . .	826	816	862	101.2	95.9	—	—	100	—	—	100	—	—	95				
Greece . . . . .	358	336	322	106.7	111.2	—	—	—	—	—	—	—	—	—				
Hungary . . . . .	553	552	619	100.1	89.3	—	—	—	—	—	—	—	—	—				
Italy . . . . .	1,050	1,049	1,182	100.2	88.9	—	—	—	—	—	—	—	—	—				
Lithuania . . . . .	824	812	891	101.5	92.5	123	—	—	117	—	—	113	—	—				
Luxemburg . . . . .	67	67	72	100.0	92.7	2.3	—	—	2.0	—	—	2.5	—	—				
*Norway . . . . .	226	238	238	99.1	87.7	—	—	98	—	100	—	—	—	96				
Netherlands . . . . .	320	323	364	99.1	87.7	—	—	—	—	2) 71	—	—	—	—				
Poland . . . . .	5,488	5,466	5,424	100.4	101.2	—	—	—	3.3	—	—	—	—	—				
Romania . . . . .	1,947	2,044	2,369	95.3	82.2	—	—	—	—	—	—	c)	—	—				
*Sweden . . . . .	1,628	1,618	1,618	99.8	54.9	—	—	—	2) 113	—	—	—	—	—				
Switzerland . . . . .	25	25	45	99.8	54.9	—	—	—	102	—	—	—	—	95				
Czechoslovakia . . . . .	1,958	1,976	2,050	99.3	95.5	—	—	—	2.9	—	—	—	—	—				
Yugoslavia . . . . .	66	84	73	78.2	90.4	—	—	—	—	—	—	—	—	—				
Total Europe . . . . .	33,794	34,896	36,863	96.9	91.7	—	—	—	—	—	—	—	—	—				
Canada . . . . .	7) 14,317	3) 13,731	3) 13,051	104.3	109.7	—	—	90	—	—	96	—	—	72				
United States . . . . .	6) 39,530	3) 30,172	3) 39,201	131.0	100.8	78.3	—	—	87.5	—	—	—	—	36.2				
Syria and Lebanon . . . . .	30	32	29	93.7	104.7	—	—	—	—	100	—	—	100	—				
*Turkey . . . . .	w) 408	419	387	—	—	—	—	—	—	—	—	—	—	—				
Algeria . . . . .	438	450	554	97.3	79.0	—	—	—	—	—	—	—	—	—				
French Morocco . . . . .	72	66	83	109.2	86.6	—	—	—	—	—	—	—	—	—				
Tunisia . . . . .	74	49	86	150.0	85.9	—	—	—	—	—	—	—	—	—				
Total Africa . . . . .	584	565	723	103.1	80.8	—	—	—	—	—	—	—	—	—				
GRAND TOTAL . . . . .	88,255	79,396	89,867	111.2	98.2	—	—	—	—	—	—	—	—	—				

(†) See explanation according to the various systems, page 577. — \*) Countries not included in the totals. — a) Above the average. — b) Average — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — h) Very bad. — m) Not including U. S. S. R. — n) Including U. S. S. R. — w) Winter crop. — s) Spring crop. — x) Estimates of 1 May. — 2) Middle of the month — 3) Area harvested. — 4) Including spelt and meslin — 5) Including spelt. — 6) Area expected to be harvested — 7) Area to be planted according to farmers' intentions on 1 May 1935 — 8) Fourth estimate. — 9) Average 1930 to 1933. — 10) Year 1933.

*Belgium:* Temperatures were high and the weather was too dry in July. Harvesting was carried out in excellent conditions but the heat caused premature ripening. Yields were below expectations.

According to the most recent estimate area cultivated to spelt this year is about 38,700 acres against 35,900 in 1934 and 36,300 on the average of the five years ending 1933; percentages 107.8 and 106.6. The corresponding production is estimated at about 587,000 centals against 544,000 and 613,000; percentages 107.8 and 95.8. The corresponding figures for meslin are as follows: Area 13,000, 8,500 and 8,500 acres percentages 153.7 and 153.4. Production 197,000 centals (340,000 bushels), 128,000 centals (221,000 bushels) and 122,000 centals (210,000 bushels). Percentages: 153.7 and 162.1.

*Bulgaria:* Weather in July was generally favourable to harvesting, which in the first half of the month was completed everywhere, while toward the end of the month threshing was over in the greater part of the country.

*Denmark:* Condition of meslin on 15 July was 101 in the Islands, 99 in Jutland against 86 in the country as a whole on 15 July 1934.

*Estonia:* In July temperatures were generally favourable to growth. In the north the crops suffered from the smallness of precipitation but in the south rainfall was adequate. In the islands and in the north *Oscinus frit* caused some damage to barley, oats and mixed crops. Condition of meslin on 1 August was 100, or average, on the system of the Institute.

*Irish Free State:* In July the weather was almost continuously bright, warm and dry, with heavy night dews, and favoured growth. Reports so far indicate a normal harvest time and production. No damage due to weather or disease is reported. The wheat crop is estimated to be about 75 % larger than last year's, due to increased area. For a similar reason the oat crop may be about 5 % heavier. The other crops will probably show no very appreciable change.

*Finland:* According to the most recent estimate production of meslin this year is about 573,000 centals (988,000 short tons) against 615,000 (1,060,000) in 1934 and 421,000 (726,000) on the average of the five years ending 1933, percentages 93.3 and 136.2.

*France:* The weather from 10 July to 10 August was on the whole dry and very hot, favouring harvesting but causing more blasting, violent rains fell toward the middle of July, causing fairly serious though localized damage, particularly in the southwest.

The first threshings confirmed the expectations of last month for wheat, unit-yields being very irregular owing to the excessively rainy and cold spring and to premature ripening; considerable areas were affected by take-all and not a few by blasting. Unit-yields were especially small in the south of the Paris Basin, in the Beauce and in the Centre and South; they appeared better and to have attained a good average in some parts of the north, east and west. On 3 August a declaration of the Minister of Agriculture placed the crop provisionally at around 176 million centals (294 million bushels); since then the general opinion, influenced by the first threshing results, has

returned to the figure of 165 (276) millions; some even indicate a minimum of 154 (257) millions but this seems excessively pessimistic. Quality of the wheat is also irregular; specific weight is in most areas fairly good, for hard wheats in the South and in Provence and in the Rhône valley better than last year. There is, however, a rather large proportion of broken and crushed grains due to blasting; by some accounts there are some million bushels unfit for milling.

Oats and barleys, of which the crop was reported good a month ago also suffered, especially in the case of spring oats, from the intense heat that prevailed in July. Appearance is irregular, good in some localities while in others, fairly numerous, the ears are reported to be light and the grains too small. Rye appears to have better withstood the drought and heat and unit-yields are reported to be good in the main centres of production.

*Great Britain and Northern Ireland:* In most districts dry sunny and warm weather prevailed in July, with only some local showers, in the northwest of England, however, there was a fairly appreciable precipitation in the third week.

Wheat ripened rapidly, often before the ears were full, in England and Wales harvesting began in very good conditions and a good crop was expected, though rather smaller on lighter lands, while in Scotland an early harvest was anticipated. The yield of wheat in England and Wales was forecast at about  $17\frac{3}{4}$  cwt. per acre, approximately equal to the average of the past ten years but 2 cwt. per acre below the last year's yield. Barley improved in England and Wales in July though in some localities the straw was short and the heads had not filled out well, in Scotland its condition was average. The probable yield in England and Wales was estimated at  $15\frac{3}{4}$  cwt per acre, about  $\frac{1}{2}$  cwt below the final ten-year average and  $1\frac{1}{4}$  cwt. less than last year's yield. Oats varied considerably in England and Wales, winter oats being generally good and spring oats lighter and rather short in the straw, in Scotland, where oats suffered more than other cereals from lack of rain, condition was average. The yield in England and Wales was expected to be  $15\frac{1}{2}$  cwt per acre,  $\frac{1}{2}$  cwt less than in 1934 and  $\frac{1}{4}$  cwt. below the ten-year average.

*Hungary:* In general the grain was shrunken, after premature ripening, save in the case of wheat, which was well-developed and well-filled. The straw is of normal length.

*Italy:* Weather was generally dry and the rare rains, though beneficial, were not sufficient for the crops, which suffered from lack of moisture, especially in the Centre. Prospects were, however, satisfactory. Threshing was carried out in good conditions.

*Latvia:* At the beginning of July temperatures were below normal and the month in general was characterized by very rainy weather. Precipitation was considerably above normal, by from 50 % to 100 %. Of the correspondents 44.4 % reported condition of winter wheat average on 15 July, 39.0 % above average and 15.7 % below average. Corresponding figures for spring wheat were 46.1 %, 45.1 % and 8.8 %, for rye 39.3 %, 56.5 % and 4.2 %, for spring barley 48.3 %, 36.7 % and 15.0 % and for oats 38.0 %, 53.1 % and 8.9 %.

*Lithuania:* During July rains were frequent and temperatures fell. Nevertheless all cereal crops passed the month well. In some places the best winter crops were

laid. The harvest began at the end of the month in normal weather. Condition of meslin on 1 August was, according to the system of the Institute, 123 against 116 on 1 July 1935.

*Luxemburg:* The sunny weather in July caused premature ripening. The crop is in advance of normal. Outturn and quality are generally satisfactory.

According to the most recent estimate production of meslin this year is about 91,800 centals (158,300 bushels) against 107,400 (185,200) in 1934 and 123,200 (212,500) on the average of the five years ending 1933; percentages 85.5 and 74.5.

*Norway:* Condition of meslin on 1 August was 105, as on 1 July 1935, against 92 on 1 August 1934.

*Netherlands:* In mid-June condition of winter wheat was good; some laying was reported but only in a few localities. In Zeeland and Groningen take-all was still present. In general ripening was rapid. Condition of summer wheat was good. That of rye was somewhat variable but in general satisfactory. Winter rye ripened too rapidly and the grains remained small and the straw short. Condition of summer rye was rather better. Even for oats ripening was too rapid.

*Poland* The abundant rains in the first half of July almost everywhere save in the west and in Warszawa, Łódz and Kielce, where the drought persisted, had an unfavourable effect on condition of cereals and in particular on that of winter and spring wheat and spring rye

This deterioration was caused especially by excessive humidity and laying and by the appearance of rust and agrotis.

The beginning of the cereal harvest was hindered by rains. In general, however, though the condition of winter and spring cereals had slightly worsened on 15 July with respect to 5 July, it remained practically the same as on 15 June and, especially for rye, better than on 15 July last year, as will be seen from the following table:

Crops	15 July 1935	15 June 1935	15 July 1934
Winter wheat . . . . .	3.3	3.4	3.2
Spring wheat . . . . .	3.3	3.3	3.3
Winter barley . . . . .	3.5	3.5	2.9
Spring barley . . . . .	3.1	3.1	2.8
Winter barley . . . . .	3.0	3.0	2.8
Spring barley . . . . .	3.3	3.3	3.3
Oats . . . . .	3.3	3.2	3.2

In the first half of August the weather was changeable but hotter than in July. Toward the middle of August temperature attained 33° C. in some areas. Drought was felt in some parts of central and western Poland. Frequent rains fell, however, in the east, where they stimulated germination of rye and laying of summer cereals. Stormy rains of short duration fell toward the middle of August in some parts of Little Poland.

Harvesting of winter and spring cereals was completed toward the middle of the month almost everywhere save in the Wilno area, where it was hindered by prolonged rains.

According to the Meteorological Institute, in the first week of August yields were expected to be as follows: rye: good in the south, average to below average in the west and centre; winter wheat: good in the south, average in the centre, poor in Great Poland.

*Romania:* In some districts crops, especially wheat, suffered greatly from drought. Quality is expected not to be satisfactory and specific weight to be smaller than last year. A trade estimate of wheat production is about 92 million bushels against the official estimate of 103 million.

Barley, on the other hand, appears to be a satisfactory crop as regards both quality and quantity; its specific weight is higher than in 1934. The quantities available for export are estimated to be 30,000-40,000 carloads of wheat of mediocre quality, 60,000 of barley and 5,000-6,000 of oats.

*Switzerland:* July was dry. Precipitation left much to be desired and real rainy days were almost entirely lacking. Some rain was recorded but conditions differed considerably with district; in general, however, rainfall proved insufficient and development of the crops suffered greatly from drought. On 20 July in several parts of the cantons of Argovie, Zurich and Thurgovie a violent hailstorm caused very serious damage.

Ripening was greatly accelerated by the high temperatures of July. The harvest, favoured by the fine weather, was carried out rapidly. The rye crop gave an excellent yield in straw, while yields in grain left little to be desired; flowering took place in May in unfavourable weather. Unit-yields of wheat and spelt are really good; barley has also given satisfactory results. In some places, however, under the influence of the drought, ripening was premature and the yield of grain seems to have suffered somewhat. Oats were not yet fully developed and, owing to the drought, the straw was rather short. Yield of cereals may, however, be considered as satisfactory to very satisfactory.

*Yugoslavia:* Though the weather was changeable, rather cool and rainy, particularly toward the end of July, it was in general favourable to harvesting and threshing.

*U. S. S. R.:* A delay of a week in beginning the work and the frequent rains of July hindered the cereal harvest.

On 5 August the area harvested in the whole Union was 99.6 million acres, 48 % of the Plan, against 104.5 million (51 %) on 5 August 1934. Threshing had on the same date been carried out on 31.1 million acres or 31 % of the areas harvested against 36.1 million (35 %) on 5 August 1934.

At the end of July the plan for sowings of winter cereals had already been published. In the whole Union it was intended to sow 93.4 million acres, the same figure as last year. The area to be sown to winter wheat is 34.8 million acres against 32.1 million laid down by last year's plan and 31.9 million actually sown in the winter of 1934.

It is interesting to note the promulgation of two legislative measures that may be reflected in agriculture in general and in cereal production in particular. The first is the ordinance of the Soviet Government dated 20 July assuring the *kolkhosi* all-time possession of the land cultivated by them, without, however, the right to sell or lease. The second is the ordinance of the Central Executive Committee of the U. S. S. R. absolving from punishment those guilty of crimes against the Government in connection with the 1932-33 and 1933-34 cereal crops.

*Argentina:* The season has been characterized over the whole country by several months of severe drought, unbroken save for sporadic and insufficient showers. To enable the position to be more precisely evaluated the following summary of the weather in the chief cereal-growing provinces has been made from the monthly reports of the Ministry of Agriculture at Buenos Aires for the May-July quarter.

**BUENOS AIRES:** In May there were slight rains in the east, west and north, while in the Bahia Blanca district preparatory work had to be suspended owing to the hardness of the soil. In June work was still backward in the central district, in the districts bounding La Pampa and in the north owing to lack of soil moisture. In the south-east and in the districts adjoining the capital growers have profited by some rain to increase sowings of wheat, especially of the spring varieties. In the first half of July there were rains in the centre and south, favouring preparation of the ground for linseed and malting barley. Sowings of early varieties were increased in the west while the drought continued to paralyse wheat sowings in the north. For the province as a whole a diminution in the wheat area was expected.

**SANTA FÉ:** In May drought, accompanied by hot winds, made the ground still harder in the north, where work continued only slowly and with difficulty, but about 60 % of the area was put under wheat or completely prepared for the next sowings. Work went on intensively in the south and east, thanks to some limited rain in those districts, while in the north moisture was insufficient. The persistent drought of June throughout the province hindered ploughing and the sowing of wheat. In the north wheat sowing continued despite the lack of rains while in the south it proceeded slowly and with difficulty. Germination of wheat was irregular and slow. There was in general a tendency to devote a larger area to linseed at the expense of the wheat area. In the south, toward the middle of July it was estimated that about 85 % of the normal wheat area was already ploughed and ready for sowing while in the centre and north, where the drought was more persistent, work was almost completely at a standstill. In this province also a reduction in the wheat area was expected. Crop condition was very unsatisfactory, germination irregular, growth feeble and colour yellowish.

**CÓRDOBA:** Drought was general in May and ploughing was backward and everywhere slowed down by the hardness of the soil. In the first half of June light rains favoured preparation of the land and sowing in some *départements* of the centre and south. In the rest of the province, save in the southwest, drought continued to hinder work. Germination was generally regular but growth was feeble. Work was almost everywhere brought to a standstill by the persistent drought and there was a reduction in the area under wheat with respect to last year. Germination was generally bad and very irregular.

**ENTRE RÍOS:** Ploughing progressed slowly in May owing to the drought. In June there were beneficial rains only in the north while in the rest of the province dry conditions continued, particularly in the centre, where work was suspended. In the first half of July the weather remained unchanged throughout the province save in the northeast, where beneficial rains fell.

**NATIONAL TERRITORY OF THE PAMPA:** Preparation of the land was seriously hindered in May by the drought, which continued in June also. The area sown to wheat up to 20 June was insignificant and germination very irregular. In the first half of July limited rains somewhat facilitated sowing, which everywhere proceeded slowly despite the advanced date. Germination was discrete.

**SAN LUIS AND SANTIAGO DEL ESTERO:** In these provinces also the predominant characteristic of the season has been the drought, which has been interrupted only by

some local showers. Preparation of the land and sowing were made difficult by the hardness of the soil. The drought continued in August almost everywhere and rain fell only in limited areas and without substantially modifying the precarious position of the crops.

(Telegram of 23 August): For wheat large decreases are recorded, the area sown this year being less than that of last year. Crop condition is mediocre. Late sowings make up a higher proportion than normal.

*Canada* (Telegram of 8 August): Compared with prospects a month ago there has been a calamitous lowering of yields and grades of wheat in Manitoba and Saskatchewan because of stem rust. The infection struck the crop earlier than in 1916 and the crop itself was not so well advanced. The weather continues to be hot and humid in the area already severely infected and the spread westward and northward into new districts is continuing rapidly. Saskatchewan is now infected as far west as the third meridian. In districts further west and north losses will not be as severe as in Manitoba and southeastern Saskatchewan but with harvest still two weeks ahead there is at the best a very uncertain outlook. Apart from the rust-infected areas crops continued to make good progress.

Temperature remained high enough to promote ripening and some good rains fell in those districts of Saskatchewan and Alberta where they could be of greatest benefit.

(Telegram of 13 August): The condition of the spring wheat crop on 31 July led to expectations of a yield 19 % smaller than the long-time average. In comparison with the prospects indicated by crop condition a month previously there was a deterioration of about 16 %. The other cereals have suffered less. Despite the losses in July crop prospects at the end of the month were still considerably better than last year at the same date. The deterioration in spring wheat due to rust continued in the first decade of August.

(Telegram of 14 August). Harvesting of spring cereals is general. In Manitoba damage from stem rust is even more serious than was expected a month or six weeks ago and some southern districts report a total failure of bread wheat and serious lowering of grades and yields of coarse grains. Rust has also developed rapidly over a larger part of Saskatchewan and in the west of that province drought has resulted in very low yields. Throughout the south-central, central and parts of the northern sections of Saskatchewan, however, good yields are anticipated in many areas. In Alberta hot dry weather has been very favourable.

The areas sown to the principal crops in the three prairie provinces of Manitoba, Saskatchewan and Alberta are as follows.

Spring wheat covers an area of 23,293,000 acres, practically the same as in 1934, when it was sown on 23,296,000 acres, and 7.1 % below the 1920-33 average of 25,083,000 acres. Oats have been sown on 9,478,000 acres, an area 4 % greater than the 9,115,000 of last year and 13.4 % greater than the five-year average of 8,355,000. The barley area is 3,187,000 acres, 7.6 % larger than the 2,962,000 acres of 1934 but 17.3 % smaller than the average of 3,854,000 acres.

(Telegram of 22 August): Spotty but heavy frost damage is reported in the Peace River district of Alberta and over a 250 mile stretch of country running west of Edmonton, Alberta to Scott, Saskatchewan. In this territory crops are late and are very susceptible to frost damage. At scattered points between Edmonton and Calgary light damage is indicated. While freezing temperatures are also recorded in southeastern Saskatchewan damage there is expected to be very limited as cutting is well advanced. Rains have been fairly general over the Prairie Provinces and have

delayed harvesting operations. In Manitoba very little bread wheat will be worth threshing since yields are low and grades poor. Durum wheat is also seriously affected. The heavy straw is lodged and tangled so that harvest is laborious and expensive. Similar reports come from Southeastern Saskatchewan and rust is now causing damage to late crops northwest of Moosejaw. The central area of Saskatchewan, containing about half the wheat acreage, continues to be promising. In Alberta wet cold weather during the past week was very unfavourable.

*United States* (Telegram of 1 August): From the Mississippi Valley eastward conditions continue to be very favourable but on the Great Plains from North Dakota and Montana southward rains are badly needed. Black rust damage is reported in the wheat area.

(Telegram of 8 August). The week has been generally hot and dry. Moisture is needed over most of the Great Plains but east of the Mississippi some areas experienced excessive rains. Yield in the central part of the winter wheat belt is disappointing and considerable rust damage to spring wheat is reported.

(Telegram of 15 August) Abnormal temperatures and scanty rainfall have created unfavourable conditions, particularly in the States west of the Mississippi. In the Winter Wheat Belt dryness delayed ploughing for winter sowings.

(Telegram of 22 August): Rain has been confined largely to the coastal regions and the Ohio valley, where threshing has been delayed.

*Japan*: Condition of wheat at the beginning of August was average.

*Palestine*: The threshing of winter cereals was still being carried on with energy at the beginning of August. The more progressive farmers are now ploughing their cereal lands and this practice is becoming much more general.

*Syria and Lebanon*: Weather in June was fairly favourable in Syria, where flowering was normal. Ripening was slightly hastened in some localities by the sudden heat recorded early in the month. At the same time it was expected that the cereal crop would be larger than that of last year. In Lebanon some spring showers, followed by violent hot winds, were disastrous in the low plains and encouraged rust on the littoral and blasting in the interior plains; completion of grain formation was impossible. Damage is about 25 % of the last year's outturn. An approximate evaluation of the crops is 1,102,000 bushels of wheat, 1,286,000 bushels of barley and 31,000 bushels of oats. In Latakia growth was slowed down by the persistent drought in June and the wheat crop was forecast at slightly less than last year; the barley and oats crops are practically the same as last year. In Jebel ed Druz fairly wide fluctuations of temperature were registered during the month, with fairly thick mists, but on the whole drought prevailed. Conditions for growth were good; ripening was completed and the harvest was almost everywhere ended. Production is reported to be good and above that of last year.

*Turkey*: According to the most recent estimate production of spelt this year is about 1,338,000 centals, as in 1934, against 1,843,000 on the average of the five years ending 1933; percentages 100.0 and 72.6.

*Algeria*: July was very hot and dry with violent scirocco, especially an Algiers and Oran, where crops had not been harvested. Blasting resulted and further reduced



the provisional estimates for all winter cereals except oats; barleys and oats especially suffered.

It must, however, be noted that, though results are very poor for all cereals as compared with those of last year, the excellent outturn in other areas has compensated for the very mediocre ones in Oran and the yield for Algeria as whole remains, even after the last reduction in the estimate, practically the same as the average for 1929-33. It is, however, possible that the damage due to the scirocco at the time of the harvest will not involve any further reduction in the figures given in the table and calculated in July before the harvest in Algiers and Oran.

Quality and specific weight of the grain are rather mediocre throughout the west but fairly satisfactory, though diminished by blasting in the east, particularly in Constantine.

*French Morocco:* July was as dry as and hotter than June, the *sharkiya* and the scirocco prevailed throughout the country, especially at the beginning of the month.

Harvesting ended much sooner than usual and at the end of July threshing was almost ended throughout the country. Yields are small on the whole, though showing wide variations, and forecasts, though very small, were not likely to be realized.

*Tunisia:* In July temperature was normal or above normal, some storms brought very localized rainfall, humidity was rather high and the scirocco was fairly strong on two occasions. In general weather favoured harvesting.

Results varied greatly according to district. In the north the Bizerta area gave yields below those of last year on European farms and good yields were expected on native holdings, in the Tunis district unit-yields were mediocre but the grain had a very good appearance. In the centre unit-yields were generally good on European farms and very irregular on native farms, where late-sown hard wheat suffered from rust and blasting. In the south unit-yields were very irregular, mostly rather low and, as the crops had suffered from blasting, especially on strong lands, much of the grain was small and of mediocre quality; on the other hand, barley gave satisfactory unit-yields and the grain was of good quality.

On the whole the crops appeared to be fairly good for soft wheats, rather below average for hard wheats and good for barley. Quality of soft wheat and of barley was generally good but much *mitadinage*, that is, opacity, was reported for hard wheat.

*Union of South Africa:* In June further beneficial rains fell throughout Cape Province and the southern and southeastern border districts of the Orange Free State.

At the end of the month winter crop prospects were most promising and large areas had been sown, especially in the north-western, eastern and south coast areas of the Cape Province as well as in the Orange Free State, where record areas had been planted, chiefly owing to the poor maize crops and favourable winter rainfall.

Dry climatic conditions, however, prevailed during June in the Transvaal, and although winter crops under irrigation were promising, it was feared that unirrigated wheat would prove a failure this season.

*Australia* (Telegram of 14 August). In Western Australia and some parts of South Australia rainfall has been unsatisfactory and in the former State rain is urgently needed. In the remainder of South Australia and in New South Wales light rains have been beneficial and conditions are satisfactory; crop condition in the latter State as well as in Victoria, where it is reported good, has improved since the last report.

## MAIZE

*Austria:* Drought damage has been considerable and the ears are small.

*France:* Between 10 July and 10 August the crop suffered greatly from intense heat and drought. The storms of mid-July were of some benefit but their moisture was insufficient and too localized. In some *départements* of the Garonne valley the crop was considered in mid-August as practically lost unless rains came shortly.

*Hungary:* Drought hindered growth.

*Italy:* Conditions are variable, good on irrigated lands, average or bad in the rest of the country, owing to the drought. In general crop prospects are not very good.

### Maize.

COUNTRIES	AREA					CROP CONDITION (†)								
	1935	1934	Average 1929 to 1933	% 1935										
				1934	Aver.	I-VIII-1935			I-VII-1935			I-VIII-1934		
1,000 acres			= 100	= 100										
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria . . . . .	...	160	151	...	...	2.8	—	—	2.5	—	—	2.7	—	—
Bulgaria . . . . .	1,673	1,658	1,796	100.9	93.1	—	—	—	—	—	—	—	—	—
France 1) . . . . .	786	846	808	92.9	97.3	—	—	—	—	—	—	—	—	—
Italy 2) . . . . .	3,269	3,305	3,332	98.9	98.1	—	—	—	—	—	—	—	—	—
Romania . . . . .	12,625	12,368	11,653	102.1	108.3	—	—	—	d)	—	—	—	—	—
Czechoslovakia 3) . . . . .	231	222	—	104.3	—	—	—	—	—	—	—	—	—	—
Canada . . . . .	158	161	142	98.1	111.0	...	...	...	—	—	95	—	—	76
United States . . . . .	93,590	87,795	103,353	106.6	90.6	...	...	75.1	—	—	67.5	—	—	49.1
Algeria . . . . .	15	16	23	93.2	66.0	..	...	...	—	100	—	120	—	—
French Morocco . . . . .	996	986	771	101.0	129.1	—	—	—	—	—	—	—	—	—

(†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 577. — 1) Areas sown to and crop condition on 1 June. — 2) Main crop "maggengo". — 3) Pure crop — 4) Area expected to be harvested. — 5) Area harvested

*Romania:* Production is estimated to be abundant and supplies available for export will amount to 150,000-180,000 carloads.

*Yugoslavia:* The light but frequent rains of July were very beneficial to the crop, which suffered from drought in June and insufficiency of soil moisture in the first half of July

*United States* (Telegram of 1 August). The week has been unfavourable for maize west of the Mississippi.

(Telegram of 8 August): West of the Mississippi conditions for maize are unfavourable.

(Telegram of 15 August): In the Winter Wheat Belt dryness damaged the crop.

(Telegram of 22 August): Continued dry hot weather over the Great Plains from Oklahoma northward is causing crop deterioration.

*Surinam:* Crop condition in the first quarter of 1935 was good. Harvest results were satisfactory.

*Indo-China:* In Tonkin and Central Annam the harvest, which ended in June, gave good results. In the other areas – North and South Annam, Cochin-China, Cambodia – growth was good, especially on the lower lands; in Cambodia the crop suffered somewhat from lack of rain at the beginning of June but recovered vigorously with the first rains in the latter half of the month.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning maize area.

	1935	1934
	acres	
Area harvested in June . . . . .	349,900	279,900
Area harvested from 1 January to 30 June .	3,146,000	2,455,000
Area planted up to end of June . . . . .	1,135,700	1,055,400

*Palestine:* The maize crop is approaching maturity; fairly satisfactory yields are expected from the coastal and inland plains of the northern district.

*Syria and Lebanon:* The weather has generally been normal and favourable save in the State of Latakia and in Jebel ed Druz, where drought prevailed in June. Crop condition on 1 July was good in Lebanon and fairly good in Latakia.

*Egypt:* Preparation and sowing of *nili* maize are in progress. Sowing was so intensified during July that it is nearly over in the south of the Delta and in general in the northern areas and Middle Egypt. Early cultivations started in Upper Egypt. Germination and growth are satisfactory. Thinning, hoeing, manuring and watering are in progress for early crops and in some of the general areas.

*French Morocco:* July was dry and very hot, with spells of violent scirocco, especially at the beginning of the month. Maize and sorghum have suffered severely and have also been attacked by *Sesamia nonagrioides*.

### Production of Maize.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934 = 100	Average = 100
	Thousand cents			Thousand bushels				
Hungary. . . . .	32,419	46,256	39,508	57,891	82,600	70,550	70.1	82.1
Romania. . . . .	119,050	106,840	121,329	212,590	190,786	216,659	111.4	98.1
United States . .	1,272,320	771,120	1,394,160	2,272,000	1,377,000	2,489,572	165.0	91.3
Turkey . . . . .	10,338	7,108	10,120	18,460	12,692	18,072	145.4	102.1
French Morocco .	2,793	5,425	3,021	4,988	9,688	5,395	51.5	92.4

*Northern Rhodesia:* Harvesting was begun in June. The crops are reported to be somewhat light in weight owing to the dry weather earlier in the season.

*Italian Somaliland:* As weather and crop progress have been normal production is expected to be practically the same as last year.

*Tanganyika:* In Moshi some early maize was being harvested in June. In Tanga good crops were being reaped.

*Tunisia:* At the end of July maize and sorghum were suffering from the drought and the crop was reported to be average.

*Union of South Africa:* In June farmers generally were very busy with reaping and threshing operations and, though yields had been disappointing in many instances good results were expected in other areas.

According to the most recent estimate production this year is about 35,882,000 centals (64,075,000 bushels) against 47,802,000 (85,361,000) in 1933-34 and 33,784,000 (60,328,000) on the average of the five years ending 1932-33. Percentages 75.1 and 106.2.

## RICE

*Italy:* Crop condition, favoured by temperatures, was good.

*United States* (Telegram of 10 August): Production in 1935 is now estimated at 1,719 million pounds of rough rice, 0.3 % less than the 1,723 million of 1934 and 8.5 % less than the 1929-33 average of 1,878 million pounds.

Crop condition on 1 August was 87.0 %, according to the system of the country, against 83.9 % at the same date in 1934 and 84.2 %, the ten-year average.

*Surinam:* Preparation for sowing had, as usual, not been completed by the end of the first quarter. The small crop of 1934, due to unfavourable weather, led to unfavourable financial results by hindering exports and leading to imports.

*India:* In Bengal rainfall in the last two decades of July was light to moderate and on the whole inadequate. In the first half of August, however, there were heavier rains, which benefited winter padi, which had been mostly transplanted by the end of July. Reaping of autumn crops continued.

Rainfall in Bihar and Orissa in the last two decades of July and the first decade of August was general. At the end of this period crops were reported to have benefited.

In the Central Provinces the weather was cloudy with moderate to heavy showers. Sowing was completed in July, germination was satisfactory and in the first decade of August transplanting and thinning was progressing. Crop condition was good.

Rain was general in the United Provinces. Crops were in good condition on 10 August and prospects were favourable.

Transplanting was carried out in Bombay in July, good rains having fallen in the middle of the month. Subsequently, however, precipitation was lighter and more scattered and drought prevailed in mid-August, when it was reported that rain was badly needed.

In Assam there was some shortage of rain but at the end of the second decade of August crop prospects were regarded as fair, though flood damage had occurred locally.

In Madras transplanting and sowing continued in July. There was heavy rain on the west coast, becoming general in the first decade of August, at the end of which crop condition was fair.

*Indo-China.* The crop of the fifth month was completed at the beginning of June in Tonkin and good yields were reported.

Preparation of the padis for the crop of the tenth month was carried on actively in June in Tonkin and at the end of that month some fields have already been transplanted, sowings and transplantings suffered somewhat from drought and in some localities from weevils. In Annam transplanting of rice of the eighth month was completed in June and in the north that of rice of the tenth month, which in the centre and south was beginning at the end of the month, the young transplanted crops suffered somewhat from drought in high padis but recovery of vegetation was good in the low padis and on the whole condition of the crop of the second semester was satisfactory.

In some parts of Cochin-China the lack of rain-water hindered sowing and transplanting during the first half of June but the work was renewed after the rains in the second half and was generally completed in good conditions. The same applies to Cambodia, where transplanting had begun practically everywhere at the end of June and growth of floating rice was good.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning rice area:—

*Area harvested in June:*

	1935	1934
	acres	
Wet padi . . . . .	1,610,300	1,525,900
Dry padi . . . . .	17,900	22,300

*Area harvested 1 January to 30 June:*

Wet padi . . . . .	6,228,800	5,973,500
Dry padi . . . . .	931,000	939,200

*Area planted up to end of June:*

Wet padi . . . . .	1,885,200	1,942,500
Dry padi . . . . .	21,900	19,500

*British Malaya.* In June rainfall was about average throughout the Peninsula, save in Malacca, Batang Padang and Lower Perak, where it was above average. Over most of the Peninsula work was actively in progress, ranging from clearing of land in the late districts to transplanting in the early. There was some delay in North Krian and North Johore due to shortage of water, consequent in the former to work on the Sungai Acheh extension scheme and in the latter to low rainfall. Elsewhere water was sufficient and in parts of Krian longer-term, heavier-yielding varieties are replacing short-term ones thanks to improved water supply. The pumping equipment

installed at Bota in Perak Central was tried out and found satisfactory. Satisfactory progress in the extension and improvement of rice cultivation is reported from many districts.

*Egypt:* Sowing of *seifi* rice was over at the beginning of July, ten days earlier than last year. During the month the weather was favourable and water supply over-abundant. Formation of ears has started in certain early-sown areas. Watering, draining and weeding are generally in progress. Transplanting and manuring are going on in late-sown areas and some of the general cultivations.

Sowing of the early cultivations of *nih* rice has started since the middle of the month. Germination and growth are satisfactory.

The total area available for rice plantation this year is about 20 % greater than that of last year and 45 % greater than the five-year average; it is only smaller than the record figure of 1932.

*Tunganyika:* Harvesting was in full swing in Mwanza in May but in June the crop was still coming in slowly.

## POTATOES

The information available for fourteen countries, including almost 40 per cent of the total European area of potatoes, indicates a slight reduction in the area cultivated, amounting to a little under 2 % with respect to last year and to a little under 1 % with respect to the five-year average. Data for the two greatest producers, Germany, for which only the area of early varieties is known, and Poland are still lacking; these two countries alone cultivate a larger area than those for which the area is at present known, so that the situation described below may be totally changed when they make known the data.

In general crop condition deteriorated during July, owing chiefly to the persistent drought and intense heat that prevailed in Western Europe; in addition doryphora caused appreciable losses in France. On 1 August condition of the main crop was good in Germany, rather below average in the majority of Northern European countries, mediocre in France. Heavy rains fell in Poland in the latter half of July, breaking the drought that had till then prevailed, in the first fortnight of August, however, dry conditions returned, with intense heat.

In North Africa the area under potatoes is declining; prospects for the coming crop are passable.

P. V.

*Austria:* The crop suffered from drought. Early varieties were still small and production was somewhat below that of last year. Prospects for late varieties were not favourable and improvement was not possible if the drought continued.

*Belgium:* Production is inadequate.

*France.* The crop suffered from the very high temperatures and drought between 10 July and 10 August. Doryphora, favoured by the storm rains of mid July and

## Potatoes.

COUNTRIES	AREA					CROP CONDITION (†)										
	1935	1934	Average 1929 to 1933	% 1935		1-VIII-1935			1-VII-1935			1-VIII-1934				
				1934 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)		
1,000 acres																
Germany. . . . .	358	585	599	61.1	59.7	—	—	3 1	2.9	—	—	—	—	—	—	3 5
*Austria . . . . .	...	6,598	6,434	...	...	2.9	—	—	2.8	—	—	—	—	—	—	3 1
Belgium . . . . .	402	393	418	102.4	96.3	—	f)	—	2.4	—	—	—	—	2.2	—	—
Bulgaria . . . . .	39	37	32	105.0	121.4	—	—	—	—	—	—	—	—	—	—	—
*Denmark . . . . .	...	189	169	...	...	—	—	96	—	—	—	—	—	—	—	87
*Estonia . . . . .	...	177	165	...	...	—	—	91	—	—	—	—	—	100	—	—
Finland . . . . .	210	206	185	102.0	113.7	—	f)	—	—	—	—	—	—	f)	—	—
France . . . . .	3,472	3,449	3,505	100.7	99.1	—	—	—	—	—	—	—	—	—	—	—
England and Wales	463	488	483	95.0	95.9	—	—	—	—	—	—	—	—	—	—	—
Scotland . . . . .	132	140	139	94.3	94.7	—	100	—	—	—	93	—	—	—	—	—
Hungary . . . . .	749	717	707	104.4	105.9	—	—	—	—	—	—	—	—	—	—	—
Italy . . . . .	1,002	1,001	953	100.2	105.2	—	—	—	—	—	—	—	—	—	—	—
Lithuania . . . . .	461	452	398	102.0	115.9	120	—	—	110	—	—	—	—	123	—	—
Luxembourg . . . . .	41	40	41	100.6	98.9	—	—	3.4	2.7	—	—	—	—	—	3.0	—
*Norway . . . . .	...	120	118	...	...	—	—	98	—	—	97	—	—	100	—	—
Netherlands. {x)	68	63	74	107.5	91.7	—	—	—	—	—	1) 64	—	—	—	—	—
(y)	277	293	340	94.7	81.6	—	—	—	—	—	1) 65	—	—	—	—	1) 65
*Poland . . . . .	...	6,825	6,662	...	...	—	—	—	3.4	—	—	—	—	3.5	—	—
Romania . . . . .	512	505	483	101.2	105.8	—	—	—	—	—	—	—	—	—	—	—
*Sweden . . . . .	...	325	335	...	...	—	2) 3.0	—	—	—	—	—	—	2) 3.1	—	—
Switzerland . . . . .	114	112	115	101.1	98.6	—	—	—	—	—	98	—	—	102	—	—
Czechoslovakia {s)	101	97	87	103.7	115.8	—	—	—	2.7	—	—	—	—	—	—	—
(t)	1,760	1,753	1,701	100.4	103.4	—	—	—	—	—	—	—	—	—	—	—
Canada . . . . .	525	569	551	92.2	95.2	—	—	—	—	—	96	—	—	—	—	—
United States . . . . .	3,256	3,312	3,188	98.3	102.1	80.7	—	—	—	—	—	—	—	—	—	66.3
*Syria and Lebanon	...	18	18	...	...	105	—	—	105	—	—	—	—	105	—	—
Algeria . . . . . {s)	16	14	26	105.2	62.8	—	—	—	—	—	—	—	—	—	—	—
(t)	21	23	25	90.8	82.9	—	—	—	—	—	—	—	—	—	—	—
TOTAL . . . . .	13,979	14,249	14,050	98.1	99.5	—	—	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals tables and note on page 577  
 — 1) At the middle of the month — 2) At the middle of the preceding month — s) Early potatoes — t) Late potatoes. — x) Potatoes for starch — y) Potatoes for consumption

the temperature, seems to have spread rather widely, its presence, though sporadic, is reported in some east-central *départements* so far immune, in the centre and especially in Haute-Vienne heavy damage would appear to have occurred. Crop prospects in mid-August were thus rather unsatisfactory.

*Great Britain and Northern Ireland* In most districts dry, sunny and warm weather prevailed throughout July, with only local showers to break the drought, save in the northwest of England, where a fair amount of rain fell during the third week of the month

In England and Wales early potatoes were yielding a light crop, tubers mostly being on the small side, main crops had a healthy and promising appearance. In Scotland the early crop was delayed in some areas by about three weeks owing to a setback by frost in May.

*Production of potatoes.*

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934	Average
	Thousand centals			Thousand bushels			= 100	= 100
Belgium . . . .	61,001	70,077	81,905	101,667	116,793	136,505	87,0	74,5
Finland . . . .	25,684	25,119	21,586	42,806	41,865	35,976	102,2	119,0
Hungary . . . .	30,733	46,709	39,112	51,220	77,848	65,185	65,8	78,6
Luxembourg . . .	2,965	4,308	4,431	4,941	7,180	7,385	68,8	66,9
Netherlands . . .	55,998	64,820	73,447	93,327	108,031	122,409	86,4	76,2
United States . .	226,200	231,172	205,370	377,000	385,227	342,283	97,8	110,1
Algeria s) . . . .	812	851	970	1,354	1,418	1,617	95,5	83,7

s) Early potatoes.

*Hungary:* The drought was very unfavourable to development, especially of late varieties. The tubers were small in size and number per unit area. Leafing had begun.

*Italy:* Due to the excessively dry weather, production is mediocre.

*Latvia:* Correspondents reported that crop condition on 15 July was average in 38.8 % cases, above average in 55.2 % and below average in 6.0 %.

*Lithuania:* The considerable rains in July were favourable.

*Luxemburg:* The persistent drought and entire lack of rain in July was unfavourable to hoed crops, especially potatoes. In some districts leaf-curl prevailed on part of the crops. Production was expected to be appreciably smaller than last year.

*Netherlands:* Condition of potatoes for consumption was in mid-July better than a month previously though still below the average; on the other hand that of potatoes for starch had deteriorated. The Thorbecke variety suffered especially from leaf-curl.

*Poland:* Following on an improvement toward 5 July with respect to 15 June crop condition deteriorated slightly, due to excessive moisture in some areas and drought in others.

In several parts of Great Poland the crop has suffered from drought.

*Romania:* Production is considered to be abundant.

*Switzerland:* Hoed crops suffered severely from the persistent drought of July and growth of potatoes in particular was brought to a standstill.

*Syria and Lebanon:* Weather in June was generally favourable. In Lebanon agrotis was reported and the damage may be placed at 20 % of normal outturn. In Latakia growth was checked by the persistent drought of June.



*Algeria:* July was dry and very hot, especially in the centre and west, with violent scirocco. In Oran a crop 20 % below that of last year was expected despite the extension of area; given the reduction of area in other *départements*, a total crop distinctly smaller than that of last year and just average must be expected.

In Algiers, which last year produced half the summer crop, unit-yields are irregular and in general rather unsatisfactory.

## SUGAR

In July sugar-beet appears to have been generally favoured in Europe by the weather, especially at the beginning of the month when precipitation was moderately heavy; subsequently the rains stopped and, though they returned

### *Sugar-beet.*

COUNTRIES	CROP CONDITION (†)								
	1st August, 1935			1st July, 1935			1st August, 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany . . . . .	2.7	—	—	2.8	—	—	—	—	3.1
Austria . . . . .	2.8	—	—	2.3	—	—	2.4	—	—
Belgium . . . . .	e)	—	—	—	—	—	e)	—	—
Denmark . . . . .	102	—	—	—	—	—	—	—	86
Scotland . . . . .	e)	—	—	—	—	g)	—	—	—
Lithuania . . . . .	120	—	—	113	—	—	110	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 577

— x) At middle of the month.

toward the end of the month, they were no longer sufficient, particularly as the roots had suffered somewhat from the drought of the preceding months. At the end of July and in the first half of August the weather was prevalently dry and very hot with the result that in the middle of the latter month crop condition was not very promising and was in some cases distinctly bad.

In most German beet areas the crops had begun to suffer toward mid-August from the drought. In Silesia the dry weather was especially felt on light lands, where the leaves were greatly wilted; nor were conditions good on other soils. In Saxony conditions were perhaps worse and if rains did not come soon, the damage might become irreparable. Rains were very poor in Brunswick also, where the roots were small and vegetation was hindered. In Hannover, especially in the southwest, the slight rains were of no avail on the completely dry soil. In Pomerania crop condition, if not good, was discrete, following on the rains in the first decade of August, and in Brunswick, though not satisfactory, crop condition was not giving rise to anxiety. In the Rhineland rain was lacking and in South Germany the little that fell brought only transitory alleviation.

In France crop condition was generally a little better but on the whole not very good. At the beginning of August drought was severely felt in Somme. In Seine-et-Marne condition varied greatly but growth was in general stunted

## 1935-36 Campaign — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1935	1934	1929 1933	1935	1934	1929 1933	1935	1934	1929 1933	1935	1934	1929 1933
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
1st WEEK OF JULY.												
Belgium . . . . .	0.4	2.0	1) 1.7	2.5	10.0	1) 7.9	5.7	6.9	1) 6.7	0.2	0.1	1) 0.1
2nd WEEK OF JULY.												
Germany . . . . .	2.5	4.0	2) 3.6	9.2	8.7	2) 11.9	9.1	12.8	2) 10.0	0.2	0.5	1) 0.3
3rd WEEK OF JULY.												
Germany . . . . .	3.5	4.8	3) 4.3	8.0	8.6	3) 12.5	11.9	15.0	3) 10.3	0.4	0.7	3) 0.4
Belgium . . . . .	2.5	5.5	4) 4.7	10.0	16.7	4) 14.6	9.0	10.9	4) 9.2	0.2	0.6	4) 0.4
4th WEEK OF JULY.												
Germany . . . . .	5.2	5.9	5.9	11.8	9.8	14.9	12.7	15.9	11.4	0.6	0.9	0.7
5th WEEK OF JULY.												
Germany . . . . .	6.7	7.3	5) 7.4	12.7	10.1	5) 15.5	13.9	14.6	5) 12.2	0.9	1.1	5) 0.9
Netherlands . . . . .	9.9	—	—	—	—	—	13.8	—	—	1.4	—	—
Czechoslovakia . . . . .	5.7	7.4	8.2	9.5	10.9	14.3	15.1	15.6	13.5	0.9	1.2	1.1
1st WEEK OF AUGUST.												
Germany . . . . .	7.4	9.3	8.0	12.9	11.5	16.3	16.1	13.0	13.1	1.1	1.2	1.0
Denmark . . . . .	7.9	6.1	6) 7.2	10.8	8.0	6) 12.2	15.2	12.3	6) 12.0	1.2	0.7	6) 0.9
France . . . . .	6.0	9.6	7) 7.9	8.0	12.0	7) 16.3	14.6	15.1	7) 12.8	0.8	1.4	7) 1.0
Czechoslovakia . . . . .	6.6	8.0	9.8	10.0	10.2	14.9	16.3	16.8	14.1	1.1	1.3	1.4
2nd WEEK OF AUGUST.												
Germany . . . . .	8.6	10.9	9.4	12.1	13.4	16.4	16.9	14.1	14.0	1.4	1.6	1.3
Belgium . . . . .	9.4	13.3	—	14.1	19.2	—	15.5	15.9	—	1.4	2.1	—
Denmark . . . . .	9.2	6.9	8) 6.5	11.0	9.1	8) 11.6	15.9	12.1	8) 12.5	1.5	0.8	8) 0.8
France . . . . .	6.7	—	9.3	10.4	—	17.7	16.8	—	13.2	1.1	—	1.4
Czechoslovakia . . . . .	7.3	9.5	11.2	9.6	10.2	14.9	17.6	16.0	14.7	1.3	1.5	1.6
3rd WEEK OF AUGUST.												
Germany . . . . .	10.8	12.2	10.9	13.9	12.8	16.6	15.2	15.8	14.8	1.6	1.9	1.6
Denmark . . . . .	11.0	9.9	9) 8.8	11.1	9.9	9) 13.0	16.5	12.5	9) 13.8	1.8	1.0	9) 1.2
France . . . . .	8.1	11.3	11.2	10.4	13.4	10) 16.8	16.2	15.4	14.0	1.3	1.8	1.6
Netherlands . . . . .	14.0	—	11) 18.0	—	—	—	15.9	—	11) 14.4	2.2	—	11) 2.6
Poland . . . . .	8.7	—	12) 9.8	12.0	—	12) 13.5	16.3	—	12) 14.4	1.4	—	12) 1.4
Czechoslovakia . . . . .	8.5	10.8	10) 12.7	10.0	10.5	10) 15.5	17.4	16.1	10) 15.3	1.5	1.7	10) 2.0

1) Average 1930, 1932 and 1933. — 2) Average 1930 and 1933. — 3) Average 1929 to 1931 and 1933. —  
 4) Average 1930 to 1933. — 5) Average 1930 and 1931. — 6) Average 1931 and 1933. — 7) Average 1931 to 1933  
 — 8) Average 1929 to 1931. — 9) Average 1929 to 1931 and 1933. — 10) Average 1929 and 1931 to 1933. —  
 11) Average 1930 to 1932. — 12) Year 1932.

and the roots small. Damage by agrotis was reported. The rains in Saône-et-Loire and Somme somewhat improved crop condition there.

In Belgium the drought hindered the crop especially on light lands and late varieties. In Great Britain growth in the first decade of August was very slow, especially in the case of late sowings. Drought was very persistent in Italy and it was feared that the high sugar-content would not compensate for the smallness of production. In Poland shortage of rains and excessive heat slowed down growth and the leaves were often wilted or dried-up.

In Czechoslovakia in the first half of August temperature was generally very high. Some rare and insufficient rain fell in Slovakia and southern Moravia but in the rest of the country, especially in Bohemia, drought was intense. The

### *Production of Sugar-beet.*

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934 = 100	Average = 100
	Thousand centials			Thousand short tons				
							%	
Belgium . .	34,827	35,428	35,949	1,741	1,771	1,797	98.3	96.9
Hungary . . .	14,833	20,332	25,595	742	1,017	1,285	73.0	57.7
Netherlands . .	30,371	39,370	38,399	1,519	1,958	1,920	77.1	79.1
United-States . .	177,600	149,620	178,068	8,880	7,481	8,903	118.7	99.7

leaves were wilted and sometimes dried up. The roots, save in rare cases, resisted well but, if the drought continued, might be seriously damaged. What has been said for these countries may be in large part extended to the others, the exceptions being few.

Crop condition in Sweden, Austria, Rumania, the Irish Free State, the Netherlands and Lithuania was, on the other hand, fairly good.

In contrast to conditions in the European beet lands, the crop in the United States made good progress and was in advance of last year's.

From this month the table of weekly analyses for the countries that regularly carry these out is published. It refers to weight of roots and of leaves and to sugar content. In general the beet is smaller than either last year or the average and, despite the fairly high sugar content, the total amount of sugar per root is rather low. However, if the weather is more favourable, the beet has still time to yield a satisfactory production.

E. R.

\* \* \*

*Austria:* Wilting commenced due to the drought and growth was generally backward. Rains were anxiously wanted.

*Belgium:* The beets in part made up for their previous backwardness but required much supplementary attention.

*Irish Free State:* The crop will probably be considerably larger this year owing to increased area. The weather, which in July was almost continuously bright, warm and dry, with heavy night dews, favoured growth. No damage was reported.

*France:* The beet suffered from the high temperatures and drought that prevailed from the end of July to the middle of August; the need for rain was acutely felt but crops did not seem so far to have undergone any serious damage. On the other hand the fine weather was favourable at least to begin with, for all the necessary operations and for the development of the crop. If rainfall were sufficient, it appeared that a good crop could still be counted on.

*Great Britain and Northern Ireland:* The weather in July was warm and dry, the drought being broken only by local showers. The beet was promising but there were some thin and patchy crops on the lighter lands and a yield somewhat below average was indicated.

*Hungary:* Growth was checked by drought. The roots did not develop vigorously.

*Italy:* Despite drought damage production was not expected to be bad.

*Lithuania:* The rain in July favoured growth.

*Netherlands:* Crop condition in mid-July was distinctly above that of a month previously.

*Romania:* Crop condition was generally good. Leafage has a good appearance but, as growth has been slow, the roots have not developed very well in some localities. Caterpillars of *Phlycaenodes sticticalis* were reported to be increasing in Moldavia and later in Bukovina and northern Basarabia but measures were taken by the Government to prevent an aggravation of the pest.

*Switzerland:* Growth was somewhat checked by persistent drought in July.

*Antigua:* In June the weather was dry but the young cane resisted well save in the northeast.

*Barbados:* Reaping had been completed by mid-July. Production of sugar, including molasses was estimated at 1,801,000 centals (90,100 short tons), a decrease of 27.8 % on 1933-34 and one of 11.0 % on the five-year average.

The weather in July favoured the growing crop and, despite the drought of June, the prospects were very promising.

*Guadeloupe.* — According to the most recent estimate production of cane-sugar in 1934-35 was about 794,000 centals (40,000 short tons) against 921,000 (46,400) in 1933-34 and 578,000 (28,900) on the average of the five years ending 1932-33; percentages 86.1 and 137.3.

*Haiti:* Exports in June amounted to 117,900 centals (5,900 short tons) against 35,300 (1,800) in June 1934, an increase of 234.2 %. Total exports from October to

June were 713,200 centals (35,700 short tons), an increase of 45.7 % on the 489,400 (24,500) exported in the first nine months of last season. It was expected that exports in the interval preceding the new crop would be almost negligible, stocks of sugar being very limited.

*Jamaica:* The crop is reported to be in all likelihood a record one.

*St. Kitts-Nevis:* According to the most recent estimate production of sugar this year is about 638,200 centals (31,900 short tons) against 633,100 (31,700) in 1933-34 and 396,800 (19,800) on the average of the five years ending 1932-33; percentages 100.8 and 160.8.

*St. Lucia:* The 1934-35 outturn of 156,700 centals (7,800 short tons) of first sugars is a record and is 35.1 % above the 115,900 (5,800) of last season and 36.3 % above the five-year average of 114,900 (5,700).

*Surinam:* Weather in the first quarter of 1935 was generally favourable. The lightness of the rains in January hastened ripening and increased sugar content but the violent storms of February were unfavourable to young plantings.

*Trinidad:* The weather has been very favourable.

*India:* According to the first forecast the area cultivated to sugar-cane this year is about 3,631,000 acres against the corresponding forecast of 3,410,000 in 1934-35 and 2,831,000 on the average of the corresponding forecasts of the five years ending 1933-34; percentages 106.5 and 128.3.

Rain was general in the United Provinces in July and the first decade of August. At the end of that period crops were in good condition and prospects were favourable.

The Punjab had also general rain in this period. On 12 August crops were in average to good condition.

General rains also benefited the crop in Bihar and Orissa.

In Bengal rainfall in the last two decades of July was light to moderate and on the whole inadequate. In the first half of August, however, there were heavier rains, which benefited the crop.

There were good rains in Bombay in the middle of July but subsequently precipitation fell off and was more scattered, drought finally prevailing in mid-August, when it was reported that rain was badly needed.

In Madras heavy rain became general in the first decade of August, at the end of which crop condition was fair.

*Indo-China:* At the end of June growth was reported as satisfactory in Tonkin.

*Iran (Persia):* The crops appear very good. About 6,000 acres were sown near Karaj and in addition considerable areas in the environs of Saujbulagh and Shahriar have been planted to sugar-beet. In the surroundings of Veramin there are also 6,000 acres under the crop. The peasants are taking up the crop enthusiastically since the facilities offered give them a considerable advantage. Around Kahriz 3,700

acres have been planted. The Department of Agriculture has also taken steps to facilitate the crop at Shahi (Mazanderan), Kermanshah, Marvdasht (Fars), Meshed and in Azerbaijan, where factories have been set up.

*Java and Madura:* The weather in the latter half of July continued to be dominated by the east monsoon. Toward the end of the month it became cloudy and some small showers were recorded. Young plantings developed regularly. Some gumming was reported in the nurseries and damage was also caused by rats.

In the first half of August the east monsoon continued and in only one district was precipitation significant. The heavy clouds and high temperatures, however, indicated that the change in the weather was near. Condition of old cane was good and young cane developed very satisfactorily. After-cultivation proceeded according to plan. No diseases or pests of importance were reported (*Aneta*).

*Egypt.* Growth of sugar-cane is progressing thanks to good weather and abundance of water. The internodes have started to form in ratoon crop and in some early areas of the new crop. Hoeing and manuring of late areas are over. The crop is satisfactory.

Production of sugar during the season ended 15 May 1935 is estimated at 3,010,300 centals, or 150,500 short tons, a decrease of 12 % compared with the preceding season (3,406,100 centals, or 170,300 short tons).

*British Guiana.* The spring crop gave an outturn of 1,774,000 centals (88,700 short tons) sugar, an increase of 17.9 % on the 1,505,000 (75,300) of the 1933-34 spring crop.

*Mauritius.* In mid-July the crop promised well and was estimated at over 5,732,000 centals (286,600 short tons), an increase of 45.4 % on the 1934-35 outturn of 3,943,000 (197,200) and one of 14.9 % on the average of 4,990,000 (249,500) for the five years ending 1933-34.

*Union of South Africa.* In June crop condition averaged 7 % below normal. Exceptionally heavy rains fell throughout the sugar belt, ranging from 200 mm (8 inches) to 460 millimetres (18 inches) and delaying harvesting for about a week.

## VINES

The fine warm weather in June favoured the vines in most countries of the northern hemisphere and allowed the previously-noted delay in development to be made up. At the end of the month intense heat and drought prevailed and lasted until about 10 August and in some areas later; some vineyards, especially in the south of France, Southern Italy, Algeria and Tunisia, showed the effects. Violent storms accompanied by hail occurred in some areas, especially in the southwest of France and in the Danube basin, causing localized damage. Cryptogamic diseases were not in general very widespread but mildew appeared in the southwest of France, where, however, it appeared to have been practically checked by the beginning of August and to have caused no serious losses, and in some provinces of northeastern Spain, where the damage was appreciable; in

France oïdium was fairly widespread in several areas. Months – eudemis, pyralis ans cochylis – are fairly numerous this year in some vine areas, such as those of Algeria and the east of France.

### Vines.

COUNTRIES	AREA SOWN					CROP CONDITION †)												
	1935	1934	Average 1929 to 1933	% 1935		I-VIII-1935			I-VII-1935			I-VIII-1934						
				1934 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)				
															1,000 acres			
Germany s) . . .	...	180	177	...	...	2.1	—	—	2.2	—	—	1.7	—	—				
Austria s) . . .	...	67	71	...	...	1.8	—	—	2.0	—	—	2.1	—	—				
Bulgaria. . . .	225	225	203	99.9	110.9	—	—	—	—	—	—	—	—	—				
France s) 1) . .	3,999	4,008	3,986	99.8	103.3	—	—	—	—	—	—	—	—	—				
Luxemburg . . .	3	3	3	100.0	85.5	2.6	—	—	2.7	—	—	—	—	—				
Switzerland . .	33	33	32	100.0	102.9	—	—	—	10.2	—	—	110	—	—				
—																		
Syria and Lebanon	...	127	123	...	...	—	100	—	—	100	—	110	—	—				
—																		
Algeria s) . . .	988	958	759	103.2	130.3	—	/)	—	c)/)	—	—	—	—	—				

†) For the explanation of signs and figures crop conditions, see cereals table note on page 577. — 1) Area, bearing. — 1) Estate on 1st. June, including vines which are pulled up in the year (154,000 acres in 1933 198,000 acres in 1932).

Toward the middle of August condition of the vines in the northern hemisphere was on the whole satisfactory; the losses subsequently caused by late frosts, hail, drought, cryptogamic diseases and insects were somewhat restricted in area and in all do not seem so far to have exceeded the normal. Only the Iberian vine districts appear to have been somewhat seriously affected, those of Portugal by drought and those of Spain by various diseases; as regards the latter country it is necessary also to take into account the spread of phylloxera and the ageing of the vines, which have been renewed only very slowly; on the whole there seems, however, to remain the possibility of a good average crop. In France present prospects indicate an outturn distinctly above the average of the last ten years but very much below the exceptional one of last year. In Italy the present condition of the vines gives grounds for expecting a production that, though apparently only slightly exceeding the five-year average, will be much above the very mediocre ones of 1933 and 1934. In the Danubian countries – Romania, Yugoslavia, Bulgaria and Greece – prospects are generally good, as also in Middle Europe – Germany, Switzerland, Austria, Czechoslovakia and Luxemburg.

In North Africa condition of the vines is average, better in the west – Morocco and Oran – than in the centre – Algiers, Constantine – and east – Tunisia; given the extension of area, which has been small or absent with respect to last year but very large with respect to the average, a production very much larger than the 1929-33 average and perhaps in the neighbourhood of last year's may be expected.

In North America the condition of Californian vines at the beginning of June was excellent but the drought that afterwards prevailed probably reduced prospects, which were at that date large.

On the whole it is almost certain that production in the northern hemisphere, not taking account of that in the Soviet Union, will not attain the exceptionally high level of last year, when it amounted to 4,270 million Imperial gallons (5,120 million American gallons). Present prospects indicate, however, an outturn above the 1929-33 average of 3,520 (4,230) million gallons. It seems that production in 1935 may, according to present prospects, be between 3,500 (4,200) million and 4,000 (4,800) million gallons.

In the Soviet Union the weather was fine, warm and dry in June, especially in the south, but there was rain in July. According to non-official information the vine area rose from 675,000 acres in 1932 to 823,000 in 1934; production in 1934 appears to have been about 110 (130 million) gallons but it was stated that only 20 per cent of the grapes would be used for wine, so that in any event the outturn of wine in 1935 will be very appreciably reduced.

In the southern hemisphere the 1935 (1934-35) production seems to have been on the whole larger than the average and equivalent to last two years' crops.

P. V.

*Germany:* Though dry weather prevailed in July vegetation and crop condition were favourable. An improvement was recorded in the latter in the south-eastern districts. On the whole forecasts of production are favourable.

*Austria:* Grape-formation was entirely satisfactory; table grapes had a particularly good appearance and were well-filled. Early varieties were becoming soft. In some places, however, drought damage was feared.

*Bulgaria:* Toward the end of July crop condition was very good and a large production of grapes was expected.

*Spain:* In July mildew developed in the north eastern provinces of Rioja, Aragon and Navarra, where crop prospects are mediocre if not distinctly bad. In the south of Castilla prospects also appear to be mediocre though in the centre and north they appear average. In La Mancha crop condition is rather irregular but would appear to offer good, if not very good, prospects. Finally, on the Mediterranean coast, in Andalucia, in Valencia and in Cataluña crop condition seems good or even excellent.

On the whole, present prospects are thus very irregular but the general view is that the crop will be around the average. In any case, despite the new prospects in certain areas, there has been no appreciable rise in prices.

*France:* The prospects of an abundant crop indicated at the beginning of July diminished in the course of that month and the first decade of August.

In the Mediterranean region - Bas-Languedoc, Roussillon, Provence, Var - shedding was reported after flowering and fairly generally; oidium is also widespread and there has been a heavy infestation of pyralis, but losses seem on the whole to be very small. On the other hand intense heat and drought continued to prevail, hindering



vegetation and development of the grapes; the Government authorized irrigation on condition that it was carried out in conformity with local customs and within certain limits. On the whole, however, this affects no significant proportion of the crop. Mildew is very rare this year and so far prospects of a good crop, much above the average and even approaching the exceptional figure of last year have been maintained for this area, given favourable conditions until the beginning of October.

In the Rhône valley and Burgundy, apart from the frost damage already indicated, prospects are also good or even very good despite the drought.

In the other areas, on the other hand, the position is much less satisfactory. Violent and repeated storms, coming in a period of very high temperatures, have brought spread of mildew throughout the southwest though this would seem to have been checked toward 10 August by the fine weather, the damage, without being very large, is appreciable, particularly in Dordogne and the Bordelais. A similar infestation occurred in the Charentes, the Loire valley and Champagne; in the last area vine moth also caused losses. Thus prospects in those areas are only average or fairly good.

On the whole crop prospects appear still to be very distinctly above average. A very rough estimate places the coming crop, on the basis of these conditions, at between 1,280 (1,450) million and 1,430 (1,780) million gallons.

*Greece:* The weather in July was generally favourable. Apart from losses caused by drought in some parts of the centre and of the Peloponnesus, crop condition at the beginning of August was very good and production of must was expected to be larger than last year.

*Hungary:* Development was vigorous, the bunches were numerous despite the excessive heat and the grain was large. Some damage from mildew, cochylis and pyralis is reported. On the sandy lands the plants suffered from the persistent drought. Seasonal operations were regularly carried out.

*Italy:* July was hot and dry throughout the area. Flowering and grape-formation were favoured and were generally carried out in good conditions, a rather heavy shedding, due to the heat, is, however, reported in certain provinces of Sicily. Growth is in general good but at the beginning of August the drought, interrupted in the south and north by some showers, was beginning to cause some anxiety in the centre, particularly in Tuscany, the showers and hail caused some very localized damage. There were practically no cryptogamic diseases or insects apart from some sporadic attacks of mildew in the north and centre and a feeble appearance of pyralis here and there.

On the whole crop prospects were thus good. They allowed an outturn distinctly above that of last year to be expected, the increase would appear in some provinces of Tuscany, for example, to be from one-quarter to one-third. In some areas production would seem even above average but the general opinion is that on the whole the Italian crop will not greatly exceed the five-year average and will be practically the same as that of 1929, which was 9,000 million Imperial gallons (10,800 million American gallons) and the ten-year average of 1924-33, which was the same. This provisional and very rough estimate is naturally given with all reserve both as to conditions in the interval preceding the vintage and as to its present value.

*Luxemburg:* Weather in July was very favourable. Cryptogamic diseases were scarcely felt. Production was expected to be smaller than last year.

*Portugal:* It is expected, especially in the Porto area that the crop will be somewhat mediocre, heat and drought having continued in July. Mildew appeared in some vineyards.

*Romania:* Crop condition was satisfactory.

*Switzerland:* Except in the areas where frost damage occurred, the vines had a very satisfactory appearance. Temperatures in July favoured growth and neutralized the previous delay. On the basis of crop condition on 1 August a good production may be expected. Mildew and worm are reported sporadically, with no serious damage.

*Argentina:* According to the Wine Control Commission, 55 million Imperial gallons (66 million American gallons) left the producing areas up to the end of May for internal consumption against 46 (55) million in the same period of 1934. an increase of 17.3 %

*United States:* According to non-official sources, condition of the Californian crop on 1 June gave promise of a good vintage. Condition of grapes for wine was 86 %, as last year at the same date and distinctly above that in the three preceding years; that of table grapes was 85 % higher than in the four preceding years; finally, the condition of grapes for drying was 80 %, equivalent to that on 1 June 1932 and distinctly above the corresponding figures in 1934, 1933 and 1931. In June and July the weather was rather dry but seems on the whole to have favoured the vines.

*Palestine:* In the plains and foot-hills the grape crop is now commencing to ripen and it is likely to be almost up to average, but not so good as in 1934. The vintage has commenced in Jaffa and in Zikhron and crops are considered to be fair.

*Syria and Lebanon:* In June the weather was generally normal and favourable to vines.

*Algeria:* July was dry and very hot, especially in the *départements* of Algiers and Oran, where the greater part of the vineyards are located; the scirocco blew violently as far as the littoral. Vines reflected these rather unfavourable conditions; vegetation, which was good at the beginning of July in Oran, was suffering at the end of the month; the young grapes are small and badly developed and colouring is irregular and backward. Eudemis infestation is serious in some parts of the coastlands in Algiers; in Oran there has been a severe infestation of flea-beetles, there are some areas of pyralis, especially on the coast and sporadic attacks of mildew. In Constantine mildew and shedding are reported to have led to a 15-25 % loss. vintage is late. On 1 August crop condition was good in Algiers and average in the other two *départements*. It is now considered that production in Oran, which is responsible for about half the total, will be less than last year; present estimates still, however, indicate a crop above the average, thanks to the recent extension of area, though the delay in colouring made the intense heat and bouts of scirocco in August and early September more to be feared.

*French Morocco:* July was also dry and very hot; the effects of the scirocco at the beginning of the month were felt in some areas, particularly in the south. On the whole, however, if the few vineyards that experienced frosts are excepted, crop condition at the end of July was good.

*Tunisia:* In the Tunis district, which includes over 80 % of the vine area, crop condition was in general very good at the end of July; there were, however, some attacks of mildew and oidium, the spread of the latter being favoured by the very hot moist weather at that date; storms caused some damage. In the Bizerta area oidium was very widespread, ripening was irregular and the crop appeared average. In the centre and south crop condition was excellent.

*Australia:* Contrary to the pessimistic forecasts that were made up to the date of the vintage, the crop was a good one in South Australia, where a first approximate estimate gives 13,200,000 Imperial gallons (15,900,000 American gallons) of wine, of which about half is for distillation; this total exceeds by 50 % that obtained in 1934 and by 10 % the five-year average and seems in part due to the fact that a relatively large proportion of the grapes was purchased for wine-making; in fact, if shipments are any guide, the quantity of table grapes has been very small.

Even if the crops of New South Wales and Victoria are mediocre, as seemed likely when the vintage began, total production of wine should be practically equivalent to the 1929-33 average of 15,400,000 (18,500,000) gallons.

## OLIVES

*Italy:* Crop condition was good but production was expected in some areas to reflect the considerable amount of shedding, particularly in the South

*Palestine:* The prospects for the olive crop show no improvement and it is likely to be a poor one. The fruits are developing well

*Syria and Lebanon:* Weather in June was normal and favourable. In Latakia, where the drought was excessive, hot winds caused shedding of part of the young fruit

*Algeria:* July was dry and hot with violent bouts of scirocco. The drought caused shedding in Algiers, in Oran fruiting was average but some shedding was also reported in Constantine.

On 1 August condition of the trees was average in each of the three *départements* in Oran a crop smaller than that of last year was expected, in Constantine prospects were average.

According to the most recent estimates, olive production in 1934-35 was about 2,707,000 centals, against 1,800,000 centals in 1933-34 and 3,694,000 on the average of the five years ending 1932-33; percentages 150.4 and 73.3. From this total crop, there were kept for preserving only 184,000 centals, against 214,000 in 1933-34 and 276,000 on the average; percentages 86.2 and 66.6. Production of olive oil was about 324,000 centals (4,257,000 gallons) against 183,000 (2,408,000) in 1933-34 and 442,000 (5,804,000) on the average; percentages 176.8 and 73.4.

The number of trees bearing was estimated at 8,107,000, a slight increase on that of last year (8,071,000) and a more appreciable one on the average (7,446,000); the total number of trees cultivated, that is, excluding oleasters, bearing or not bearing, was 9,400,000, of which 4,432,000 were in mass plantations occupying 169,600 acres,

with very small variations from the figures of last year and the average; in 1933-34 there were 9,398,000 olive trees cultivated, of which 4,405,000 in mass plantations, occupying 168,000 acres while on the average of the five years ending 1932-33 there were 9,417,000.

*French Morocco:* The trees suffered, especially in the south, from drought, severe heat and scirocco in July. The crop was expected to be distinctly small in the south, where the soil is already only just moist enough.

*Tunisia:* In the Sousse area, the most important for oil production, growth was very good at the end of July and the crop was well free of disease, the fruit was growing normally, the fruit-bearing branches were well developed and, despite the shedding caused in June by violent winds, production promised to be very satisfactory, though the groves that produced heavily last season will produce little or nothing this year. In the Sfax area, which is second in importance, growth was also excellent at the end of July, health of the trees was good, the fruit-bearing branches were very well developed and had young fruit over a large part of their length, production appeared to be abundant. These two districts are responsible for two-thirds of the trees in bearing. In the Tunis district, which is also important, the trees had normal growth and the crop was reported to be average. Finally, while in the Centre, in the Kef area, prospects were good, the Bizerta area reported much shedding and production appeared likely to be mediocre to good according to locality.

## COTTON

### RESULTS OF THE 1934-35 SEASON.

#### *Area and production.*

The two following tables are based, as far as the 1934-35 season is concerned, on the figures and reports received up to the middle of August. Some of the estimates are still provisional and subject to correction but on the whole it may be said that the totals are well established and are unlikely to undergo any but minor changes. The bales in this article are all 478-pound bales, net weight. Stocks and consumption figures are only very approximate estimates.

#### *Area under cotton, in thousands of acres.*

	1934-35	1933-34	1932-33	1931-32	1930-31	Average 1925-26 to 1929-30
United States . . . . .	20,987	20,978	35,939	38,705	42,454	42,606
India . . . . .	23,980	24,136	22,483	23,722	23,812	26,192
Egypt . . . . .	1,798	1,873	1,135	1,747	2,162	1,828
<i>Total . . . . .</i>	<i>52,765</i>	<i>55,987</i>	<i>59,557</i>	<i>64,174</i>	<i>68,428</i>	<i>70,626</i>
United States per cent. . . . .	51	54	60	60	62	60
China . . . . .	6,828	6,142	5,633	4,803	5,708	4,519
U. S. S. R. . . . .	4,787	5,070	5,307	5,281	3,011	2,013
Brazil . . . . .	3,950	2,570	1,778	1,980	1,648	1,285
Other countries . . . . .	7,030	6,040	5,180	5,130	5,460	4,900
<b>WORLD TOTAL . . . . .</b>	<b>75,360</b>	<b>75,813</b>	<b>77,518</b>	<b>81,373</b>	<b>85,154</b>	<b>83,400</b>
United States per cent. . . . .	36	40	46	48	50	51

A first glance shows the steady decline of the acreage in the United States from 1930-31 onward with respect to the total of other countries. From an average of 51 % of the world cotton area in the five years ending 1929-30 the area in the United States falls to 36 %, while production falls from 57 % to 41 %, with 62 % in 1931-32 owing to an exceptional unit-yield. In 1934-35 the United States area under cotton was reduced by about 3 million acres from the figure of the previous season; as the world area declined only by about  $\frac{1}{2}$  million acres it will be seen that the total of other countries increased by about  $2\frac{1}{2}$  million acres. This increase is only verified, however, in China, which consumes the whole of its production, in Brazil, of which the export is still relatively small, and in the minor producing countries, of which the total area shows an increase of about 1 million acres from one season to the other.

World production, on the other hand, has undergone a diminution of about 3 million bales owing to the bad or mediocre unit-yields in India, the United States, the U. S. S. R. and elsewhere. The United States production has declined by about 3.4 million bales; the total for the other countries has therefore increased by some 400,000 bales. Like India, however, Egypt and the U. S. S. R. together show a fall of about 650,000 bales; an increase has not actually occurred save in China, by about 400,000 bales, Brazil, by 360,000 bales, and the group of *other countries*, by about 280,000 bales.

In reality, therefore, the gap left by the decline in American production has been filled only partially by the production of other countries; the remainder is represented by stocks. World stocks of American cotton have in fact diminished by about 1.8 million bales from 1 August 1934 to 1 August 1935, falling from 11.3 to 9.5 million bales, while total stocks of other cottons have diminished in the same period by only about  $\frac{1}{2}$  million bales, namely, from 5.7 to 5.2 million bales.

*Production of ginned cotton, in thousands of bales of 478 lb.*

	1934-35	1933-34	1932-33	1931-32	1930-31	Average 1925-26 to 1929-30
United States (1) . . . . .	9,636	13,047	13,002	17,096	13,932	15,268
India . . . . .	4,058	4,241	3,897	3,353	4,373	4,724
Egypt . . . . .	1,566	1,777	1,027	1,317	1,715	1,587
<i>Total</i> . . . . .	15,260	19,065	17,926	21,766	20,020	21,579
United States per cent. . . . .	63	68	73	79	70	71
China . . . . .	3,123	2,725	2,260	1,784	2,456	2,059
U. S. S. R. . . . .	1,673	1,929	1,858	1,874	1,548	993
Brazil . . . . .	1,370	1,011	448	575	459	525
* Other countries . . . . .	2,140	1,860	1,400	1,536	1,447	1,475
<b>WORLD TOTAL</b> . . . . .	<b>23,570</b>	<b>26,589</b>	<b>23,891</b>	<b>27,535</b>	<b>25,930</b>	<b>26,631</b>
United States per cent. . . . .	41	49	54	62	54	57

1) Not including linters, for which the figures are respectively as follows, in thousands of 500-pound bales, net weight, and beginning from 1933-34: 947; 879; 1,029; 950 and 1,118.

# THE 1935-36 SEASON.

The following table and information already give a fairly clear idea of the season that has just begun, such an idea thus being obtainable at an earlier date than usual.

In the UNITED STATES the July report did not take the market by surprise but the August estimates were higher than had been forecast. Temperatures in July were generally very favourable to the plants and harmful to the activity of boll weevil, of which the infestation was expected to be very serious this year but which appeared only in proportions that were normal, though slightly above those of the last two years. All the leading cotton States increased their area this year, save Oklahoma, and all had unit-yields above normal save Arkansas, Oklahoma and Tennessee. In July and August the weather was generally more favourable than in other years. Picking, though a week or two behind in the north, is now general in the centre and south and the first arrivals show excellent quality. Below will be found a summary of the Government cotton reports, in which the data for this year are compared with those of last year and the average.

## Cotton.

COUNTRIES	AREA						PRODUCTION OF GINNED COTTON								
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	% 1935/36			
				1934/ 1935	Average 1935							1934/ 1935	Average 1935		
														1934/ 1935	Average 1935
1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb.			= 100	= 100			
Greece 1) . . . . .	2) 132	91	54	146.1	246.7	...	173	95	...	36	20	...	...		
U. S. S. R . . . . .	3) 4,800	4,787	4,447	100.3	107.9	10,730	7,996	8,116	2,245	1,673	6,698	134.2	132.2		
Brazil: North States	...	1,729	1,366	...	...	5,192	3,572	1,971	1,086	747	412	145.4	263.4		
United States 5) . . .	28,480	26,987	38,024	105.5	74.9	56,394	46,060	68,737	11,798	9,636	14,380	122.4	82.0		
Mexico . . . . .	...	418	364	...	...	4) 945	1,066	952	4) 198	223	199	88.7	99.3		
China . . . . .	4) 5,498	6,828	5,484	80.5	100.3	12,789	14,930	10,842	2,676	3,123	2,268	85.7	118.0		
Chosen . . . . .	515	474	445	108.5	115.7	...	650	636	...	136	133	...	...		
India 4) . . . . .	14,494	12,991	14,411	111.6	100.6	...	...	...	...	...	...	...	...		
Turkey . . . . .	...	486	432	...	...	2) 970	775	406	2) 203	162	85	125.2	239.0		
Egypt . . . . .	1,733	1,798	1,766	96.4	98.1	...	7,483	7,269	...	1,566	1,521	...	...		

1) Area sown. — 2) Unofficial estimate. — 3) Estimate of the Plan. — 4) First estimate. — 5) See: Summary of Government's Cotton Reports.

The Government of INDIA communicated to the Institute on 17 August the first forecast for 1935-36, which shows an increase in area of 11.6 % on the corresponding forecast of last year and one of 0.6 % on the average of the five preceding years. This forecast relates to the area sown up to the end of July and in general comprises 60 % of the total harvested area. The favourable conditions that have prevailed give grounds for expecting a large crop.

In EGYPT the Government published on 5 August the detailed estimate of the area under cotton in 1935-36, showing a reduction of 3.6 % from that of last year and one of 2 % from the average.

The following table shows the distribution of the total area amongst the different varieties, with corresponding figures for preceding seasons:—

Varieties	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
	(thousand acres)						
Sakellaridis . . . . .	309	435	406	383	497	869	880
Ashmuni and Zagora . . . .	974	919	1,049	526	788	972	835
Other varieties . . . . .	450	444	418	226	463	321	197
<i>Total . . .</i>	<i>1,733</i>	<i>1,798</i>	<i>1,873</i>	<i>1,135</i>	<i>1,748</i>	<i>2,162</i>	<i>1,912</i>

*Sakellaridis* shows a further decrease; the medium-staple varieties, *Ashmuni* and *Zagora*, on the other hand have increased while the others are stationary.

In the U. S. S. R., under the Government plan, a production 34.2 % larger than that of last year and 32.2 % above the average is forecast. Conditions have so far been generally favourable, except in some irrigated districts.

The Chinese Cotton Statistics Association, Shanghai, in a telegram of 20 August, communicated the first estimate for the 1935-36 season in CHINA. Area has diminished by 20 % and production by 14 %. This estimate refers to conditions prior to August. It is especially in North China that the decrease in sowings has occurred. In addition part of the crop suffered in spring from insufficient rain.

Summing up, on the basis of the estimates and other information available, production in 1935-36 may in a largely approximate way be forecast at something possibly between 2 ½ and 3 ½ million bales greater than that in 1934-35 and approaching the five preceding seasons' average of 26.1 million bales. This increase is due principally to the United States (over 2.2 million bales), Brazil and India and is in part a consequence of the price policy followed in 1934-35 by these three States and of the opinion that consumption will be almost equal to or larger than that of 1934-35, namely about 25 ½ million bales.

The new crop production then balances *grosso modo* with probable consumption, and it may therefore be expected that in the course of the present season there will be no substantial change in the volume of world stock, which will thus remain in the neighbourhood of the 14 ½ million bales, at which they were estimated on 1 August 1935, whereas they decreased by about 2 ½ million in the 1934-35 season, which began with a world cotton stock of about 17 million bales.

I. SAITO.

*Greece:* The rains in June were very beneficial to non-irrigated crops, which make up two thirds of the total area under cotton. The weather in July was also on the whole favourable. Flowering was completed toward the end of July. Up to that date no heavy damage had been reported.

*Brazil:* The following table summarizes the available estimates on cotton growing in Brazil, during the 1934-35 season:

	1934-35	1933-34	Average 1928-29/ 1932-33	% 1934-35 1933-34 = 100	Average = 100
	(thousands of acres)				
1) Northern States . . . .	1,730	1,400	1,310	123	132
2) Southern States . . . .	2,220	1,170	320	191	700
<i>Total</i> . . . .	<i>3,950</i>	<i>2,570</i>	<i>1,630</i>	<i>154</i>	<i>243</i>

	thousands of 478-lb. bales				
1) Northern States . . . .	750	468	400	160	187
2) Southern States . . . .	626	543	103	115	602
<i>Total</i> . . . .	<i>1,370</i>	<i>1,011</i>	<i>503</i>	<i>136</i>	<i>273</i>

1) Sowings from January to June; picking from August to January. — 2) Sowings from September to November; picking from March to July.

*United States* (Telegram of 8 August): Weather for cotton has generally been favourable:

(Telegram of 15 August): Condition of cotton is satisfactory except in the centre and northwest of the Cotton Belt, where rain is needed.

(Telegram of 22 August): Cotton shows good progress.

Summary of Government's Cotton Reports, by cotton seasons:

	Provisional estimates for dates indicated 1935/36	Final estimates		Percent. 1935/36	
		1934/35	Average 1929/30 to 1933/34	1934/35 = 100	Aver. = 100
<i>Report referred to 1 July:</i>					
Area in cultivation (acres) . . . . .	19,166,000	27,883,000	40,860,000	104.6	71.4
<i>Report referred to 1 August:</i>					
Area left for harvest (acres) . . . . . (1)	28,480,000	(2) 26,987,000	(3) 38,024,000	105.5	74.9
Crop condition, (per cent of normal) . . . . .	73.6	60.4	(4) 68.7	—	—
Total production (5) . . . . .	11,798,000	9,636,000	14,380,000	122.4	82.0
Yield of lint per acre, in lb . . . . .	198.3	170.9	(4) 177.1	116.0	112.0
Cotton ginned to 1 August (6) . . . . .	94,241	99,787	82,957	94.4	113.6
Cotton ginned to 16 August (6) . . . . .	317,000	353,888	335,834	89.5	94.4

(1) Area in cultivation on 1 July, less the ten-year, 1925-34, average abandonment, about 2.4 per cent. — (2) Area actually harvested, per cent of abandonment about 3.2 — (3) Area actually harvested, the per cent of abandonment, about 1.7, does not take into account about 10 ½ million acres ploughed-up in 1930 after 1 July, under Agricultural Adjustment Administration contracts — (4) Ten-year, 1924-33 average. — (5) In bales of 478 lb. net weight and exclusive of linters — (6) In running bales, counting round bales as half-bales and exclusive of linters.

*Haiti:* Exports of cotton in June amounted to 10,600 centals (2,214 bales of 478 lb.) against 13,200 (2,800) in June 1934, a decrease of 19.9 %; the total export for October-June was 129,600 (27,100) against 106,700 (22,300) in the same months of 1933-34, an increase of 21.4 %.

*St. Vincent:* According to the most recent estimate production of lint this year is about 1,640 centals (343 bales of 478-lb.) against 997 (209) in 1933-34 and 3,056 (639) on the average of the five years ending 1932-33; percentages: 164.6 and 53.7.



*India:* In the Central Provinces the weather in July and the first decade of August was cloudy with moderate to heavy showers. Sowing had been completed by the beginning of July. At the end of the period crop condition was good.

Good rains fell in Bombay in mid-July but subsequently precipitation was lighter and more scattered and toward the middle of August drought prevailed. The crops on the Deccan canals suffered from wilt. In the Karnatak sowing was held up by the deficiency of rain. In general at the end of the period rain was reported as badly needed.

In Madras heavy rains became general in the first decade of August, at the end of which crop condition was only fair.

Rain was general in the Punjab in July and the first fortnight of August. Crop condition was average to good. There was damage in Montgomery from bollworm and in Multan from tela.

According to a telegram of 19 August the area cultivated to cotton in the Punjab this year is about 2,808,000 acres against the corresponding estimate of 2,442,000 in 1934-35 and 2,201,000 on the average of the five years ending 1933-34; percentages 115.0 and 127.6. Crop condition was 98 % of normal.

*Indo-China:* The crop appeared at the end of June to be satisfactory in North Annam and average in some provinces of Central Annam.

*Iran (Persia).* In the province of Isfahan the cotton crop underwent an increase in area. The cotton company distributed seed to the growers and granted monetary advance to encourage the extension of the crop. The very beneficial rains in June and July assured a very favourable crop this year.

*French Equatorial Africa:* According to the most recent estimate production of ginned cotton for 1934-35 is about 154,000 centals (32,300 bales of 478 lb.) against 99,000 (20,700) in 1933-34 and 27,300 (5,700) on the average of the five years ending 1932-33; percentages 156.0 and 566.0

*French West Africa:* The 1934-35 crop in Dahomey was average, with 19,500 centals (4,100 bales) of lint against 18,700 (3,900) in 1933-34. The area is increasing.

*Egypt:* Owing to the favourable weather of July, the formation and maturation of bolls are naturally satisfactory in early-sown areas, where some bolls opened. In general crops, bolls have also reached their full size and started to mature. Branching and boll appearance indicate good growth. Infestation by leaf-worm in Lower Egypt is not dangerous, although egg-masses are still numerous in the northern districts, where special care has to be taken during the first half of August. In Middle Egypt egg masses are decreasing, but hatching has taken place in some localities; worms have caused little damage. Nevertheless the injured areas are small as compared with the total areas.

\* *Nigeria:* Planting was begun in the north in July; the good demand for cotton seed was expected to lead to a record crop.

*Nyasaland:* In the lower River area crop condition was reported to be well above average, especially in south-central Chikwaka. In other areas, especially east of the Ncheu escarpment, condition was good.

*Uganda:* In June rainfall was considerably above normal in most areas and this, with subnormal temperatures, retarded planting, though preparation of plots was well forward. Given normal weather subsequently, the satisfactory soil saturation prior to planting was expected to be favourable to yield. In the first decade of July, though rainfall continued to be above average, planting progressed satisfactorily and germination was good.

*Italian Somaliland:* As weather and crop progress have been normal production is expected to be practically the same as last year.

*Anglo-Egyptian Sudan:* According to the final estimate, cotton area harvested during the season 1934-35 was 364,600 acres against 333,100 in 1933-34 and an average of 341,400 during the five preceding seasons; percentages: 109.4 % and 106.8 %. Production was estimated at 1,087,300 centals of ginned cotton (227,500 bales of 478 lb.), of which 84 % were *Sakellaridis*, compared with 645,500 (135,100) in 1933-34 and with an average of 674,600 (141,100) during the five preceding seasons; percentages: 168.4 % and 161.2 %.

The 1934-35 production was a record for the Sudan, being appreciably greater than that of 1931-32. During July pulling out and burning of all old cotton stalks was proceeding. Preparations for the new season were progressing satisfactorily and were finished in some parts, though rains and shortage of labour interfered in some measure with progress in the Gezira irrigated area.

*Tanganyika:* In June the crop was reported fair in some parts of Mwanza and ndifferent in others, with a high percentage stained. In Morogoro prospects were still good despite rain during the month.

*Union of South Africa:* According to the most recent estimate production of lint in the Union and Swaziland in 1934-35 was 12,677 centals (2,652 bales against 9,331 (1,952) in 1933-34 and 30,990 (6,483) on the average of the five years ending 1932-33; percentages: 135.9 and 40.9.

## FLAX

*Belgium:* The crop suffered from the dry weather in July.

*Irish Free State:* The crop will probably be considerably larger this year owing to the increased area. The weather in July was almost continuously bright, warm and dry, with heavy night dews and favourable to growth. No damage was reported.

*France:* Weather in July and the first days of August was very favourable; the dry conditions were especially beneficial for the bringing in of the green crop; retted flax had to remain for a long time in the fields owing to the drought.

*Great Britain and Northern Ireland:* Reports concerning the flax crop in Northern Ireland at 1 August were generally very encouraging, despite the fact that in many areas the unevenness of growth referred to in earlier reports was still noticeable. It was considered that yields of straw would be slightly above average. Pulling

was in progress and in some areas steeping and spreading. The flax area was substantially larger than in 1934 and the largest since 1930. The increase in production this season was therefore expected to be very marked. The weather in July was on the whole bright and warm but there were some wet cold days at the end of the month.

*Hungary:* Unit-yield was generally small. Stems for fibre were short but fairly hard.

*Latvia:* Correspondents reported that crop condition on 15 July was average in 38.3 % cases, above average in 53.1 % and below average in 8.6 %.

*Lithuania:* The heavy rains of July favoured growth.

### Area and Crop Condition of Flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)													
	1935	1934	Average 1929 to 1933	% 1935															
				1934 = 100	Aver. = 100	I-VIII-1935			I-VII-1935			I-VIII-1934							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
1,000 acres																			
Germany . . . . .	51	22	20	235.5	257.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Austria . . . . .	...	4	7	...	...	2.7	—	—	—	2.5	—	—	—	—	2.4	—	—	—	—
Belgium . . . . .	46	34	42	134.8	109.7	e)	—	—	—	—	—	—	—	—	e)	—	—	—	—
Bulgaria . . . . .	10	4	1	229.0	941.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Estonia . . . . .	63	53	56	119.7	111.8	116	—	—	—	—	—	—	—	—	110	—	—	—	—
Finland 1) . . . . .	12	11	9	101.4	129.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France . . . . .	56	58	54	97.2	104.8	—	—	—	63	—	—	—	—	—	—	—	—	—	—
Hungary . . . . .	{ 2) 3)	31	30	—	104.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania 1) . . . . .	8	8	—	104.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Netherlands . . . . .	227	150	159	151.6	143.3	123	—	—	110	—	—	—	—	—	106	—	—	—	—
Poland . . . . .	23	15	24	150.5	97.5	—	—	—	105	—	—	—	—	—	—	—	—	—	—
Czechoslovakia . . . . .	...	262	261	...	...	...	...	...	...	...	...	...	...	...	3.2	—	—	—	—
Canada . . . . .	28	23	27	117.2	101.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
United States . . . . .	217	227	463	95.6	46.8	—	—	88	—	—	95	—	—	60	—	—	—	—	—
India . . . . .	2,138	969	2,500	220.6	85.5	71.8	—	—	—	—	77.2	—	—	40.3	—	—	—	—	—
Egypt . . . . .	3,381	3,261	3,096	103.7	109.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
...	5	5	3	92.8	155.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—

†) For an explanation of the signs and of the figures of crop condition, see the note on page 577 and the cereals table — 1) Flax and hemp. — 2) Area cultivated principally for seed. — 3) Area for fibre. — 4) At the middle of the month.

*Netherlands:* The plants are rather short. The drought of recent weeks prevented rotting in the areas where rains had been too heavy.

*U. S. S. R.:* On 5 August the crop had been pulled on an area of 1,498,000 acres, 28.8 % of that planned.

*Argentina* (Telegram of 23 August): For linseed, of which crop condition is mediocre, the area is larger than last year. Losses are reported from inadequate precipitation and frosts.

## HEMP

*Belgium:* According to the most recent estimate production of hemp (fibre) this year is about 1,600 centals against 1,400 in 1934 and 600 on the average of the five years ending 1933; percentages 118.2 and 277.5.

*Hungary:* Growth was very good and uniform. In some areas the stems were short due to the drought.

*Italy:* Harvesting was in full swing; production was expected to be excellent in quality and larger than last year.

## HOPS

*Belgium:* The crop suffered from the dry weather in July.

According to the most recent estimate area cultivated this year is 2,300 acres against 2,170 in 1934 and 2,128 on the average of the five years ending 1933; percentages 98.2 and 100.1. The corresponding production is estimated at about 3,801,000 lb. against 3,871,000 and 2,318,000; percentages 98.2 and 164.0.

*Great Britain and Northern Ireland:* The warm, sunny weather of July was favourable though it was beginning to be felt at the end of the month that rain would be very beneficial. The bines, though rather thin, were generally healthy and fairly vigorous. Pests and disease were less prevalent than usual. The area under the crop is estimated at 18,000 acres, practically the same as last year but 7 % less than the 1929-33 average. Yields were expected at the end of July to be rather under average.

*Hungary:* The cones were few owing to the drought.

*United States* (Telegram of 10 August): Production is now estimated at 48 million pounds, 16.5 % more than the 41,200,000 lb of 1934 and 63.2 % more than the 1929-33 average of 29,415,000 lb.

Crop condition on 1 August was 82.7 % in the notation of the country, against 71.4 % on the same date of 1934 and 85.0 %, the ten-year average.

## TOBACCO

*Belgium:* The crop suffered from drought in July.

According to the most recent estimate area cultivated to tobacco this year is about 8,200 acres against 7,200 in 1934 and 7,000 on the average of the five years ending 1933; percentages 113.1 and 117.1. The corresponding production is estimated at about 16,070,000 lb. against 14,201,000 and 14,531,000, percentages 113.1 and 110.6.

*Greece:* According to the Office for the Protection of Greek Tobacco the area is about 200,500 acres against 192,000 in 1934 and 209,200 on the average of the five years 1929-33; 104.4 % and 95.8 %. The corresponding figures of production are 92,509,000 lb., 86,240,000 lb. and 115,503,000 lb; 107.3 % and 80.1 %.

*Hungary:* Sand-laden winds caused some damage to the leaves, which were already, owing to the drought, only poorly developed.

*Italy:* Production was expected to be satisfactory. In several areas growth was in advance of normal.

*United States:* Crop condition on 1 August was 79.4 % according to the system of the country, against 70.2 % on the same date in 1934 and the ten-year average of 72.6 %.

(Telegram of 10 August): According to the most recent estimate production of tobacco this year is 1,222 million pounds against 1,046 million in 1934 and 1,434 million on the average of the five years ending 1933; percentages 116.8 and 85.2.

*Dominican Republic:* Production in 1935 is estimated at 7.7-8.8 million pounds. About half of this is composed of superior types (Moca, La Vega), the rest ordinary. Due especially to the excellent quality of the first harvestings interest was very great from the beginning. Two new facts contributed to maintain firmness: the purchases of the Spanish Monopoly, fixed at about 2.2 million pounds and those on German account through a local firm in close touch with the Dominican Government.

Planters are holding out for good prices and in addition buyers are forced by the smallness of supplies available for sale to increase their demands. At the end of June in almost all districts over half of the crop had been sold and business remained active. Prices rose slightly in the Moca district. In La Vega, on the other hand, in the areas producing ordinary types and interested particularly in purchases on Spanish account, there was a notable rise, prices exceeding the highest quotations of mid-June by about 10 %.

*Indo-China:* Yields have been good in North Annam, rather smaller than last year in Central Annam and practically normal in South Annam.

*Iran (Persia):* Crop condition was quite satisfactory in Gilan, where tobacco-growing is extending rapidly under the direction of the monopoly administration. The soil and climate favour aroma and quality in general. Aided financially by the tobacco administration, the owner-cultivators, who obtain a sure and regular income from the crop, have this year increased the area and, with the steps taken toward more careful preparation, it is to be expected that exports will in the near future show a large increase.

*Japan:* According to the most recent estimate production of tobacco this year will be about 144 million pounds against 149 million pounds in 1934 and 144 million pounds on the average of the five years ending 1933; percentages 96.6 and 100.1.

*Palestine:* The first picking of tobacco leaves has commenced; yields are expected to be heavy.

*Syria and Lebanon:* Crop condition in Lebanon on 1 July was good while in the State of Latakia, due to the continuous drought of June, it was below average.

*Algeria:* In the *département* of Algiers heat and drought hindered normal development, especially of late-transplanted crops. In Constantine the crop ripened toward the end of July and picking and drying were begun; drying was facilitated by the increasing use of metallic driers; on the whole unit-yields below average were expected as the crops transplanted late suffered from the heat and had leaves of mediocre quality, especially on heavy lands.

*Nyasaland:* Despite the unsatisfactory weather of the past season the crop is reported to have been on the whole a good one, particularly in the Southern Province. The leaf, though below average length, is sound and of good colour. In the later stages the weather proved more favourable to ripening.

*Italian Somaliland:* As weather and crop progress have been normal production is expected to be practically the same as last year.

## OTHER PRODUCTS

### Cacao.

*Brazil:* In Bahia the weather continued to be fairly favourable throughout the latter part of June and arrivals of cacao were large and slightly better than anticipated. At the beginning of July, however, arrivals fell off owing to the violent storms experienced throughout the cacao areas. Transport was seriously affected.

The effects of this weather on the main crop could not yet be judged. Owing to the large intermediate crop the main crop depended to a large extent on the July and August flowerings, the last of the season. The heavy rains had been partly responsible for cacao being retained up-country, the condition of the roads being unsatisfactory, but a labour dispute affecting the steamship communication between the small cacao posts and Bahia had accentuated this tendency. Arrivals at Bahia in June were 17 million pounds.

If conditions in the latter half of July were more favourable the arrivals in that month may have attained 22 million pounds; large quantities would still remain up-country and would come down only in August, thus making the latter month the principal one of the year. Shipments in June amounted to 14 million pounds, stocks on 30 June were 5 million.

The quality of the beans has been very good and much better than in the previous two years, but there was a possibility that the rains in July would bring a set-back in this respect.

*Haiti:* Exports in June were 1,300 centals against 1,080 in June 1934, a decrease of 35.2 %. The total export of the first nine months of the current season was 22,500 centals against 32,600 in the same months of last season, a decline of 30.9 %.

*Surinam:* In the first quarter of 1935, except in the young plantations of the Nickerie district which progressed regularly, condition of the trees had not improved and the land was gradually being put under rice or oranges.

*Trinidad:* The weather in July continued to be ideal.

*Gold Coast and British Togoland:* The 1934-35 major crop is now estimated at 594 million pounds, the highest figure recorded. Stocks of major crop on 30 June were approximately 112 million pounds.

The minor crop was considered at mid-July to be undoubtedly a small one. Estimates of the crops on the trees pointed to a potential production of from 22 million to 27 million pounds; the amount finally marked will depend on prices. Little interest appeared to be taken in the crop in many parts of the country while the low price and wet weather had precluded cropping on outlying farms. In Ashanti some 50 % of the crop had ripened by the end of June. In the Central Province about a third was ripe, save in the Winneba area, where the crop was much earlier than elsewhere; by the end of July it was expected that 80 % would be ripe. In the Eastern Province about 40 % was ripe at the end of June and in the Nsawam-Kibi area about 90 % was expected to be ripe by the end of July. In the Western Province the crop is negligible.

Altogether some 9 million pounds had been harvested, of which 7 million had been marketed, the balance remaining in farmers' hands. The beans were flat and undersized, due to the relatively dry weather in November, December and January. Wet dull days rendered conditions unfavourable for drying throughout all the cacao areas. In June the average size of the beans inspected was 141.9 per 14 cubic inches or 116.2 per 4 ounces, while measured in millimetres the average was  $22.3 \times 12.1 \times 6.6$ . Average purity was 82.5.

The following are the data of crop movement in the first nine months of 1934-35 in millions of pounds: —

	June 1935	Oct to June 1935	June 1934	Oct. to June 1934
Railway offloadings, Takoradi . . . . .	2	187	3	180
Exports:				
Takoradi . . . . .	5	159	6	181
Accra . . . . .	12	206	8	179
All ports . . . . .	21	469	17	445

## Tea.

*India:* In June seasonable weather prevailed in North India; crop prospects were only fair. Light southwest monsoon conditions prevailed in South India and crop prospects were normal for the time of year.

Statistics to the end of June recorded a decrease of 3,175,000 lb. for North India as compared with the outturn to the same date last year, while in South India outturn was 10.26 % ahead of the corresponding date last year.

*Indo-China:* In Tonkin picking was active at the beginning of June, average to rather small in the second half of the month; the bushes were attacked by white cochineal.

*Japan:* Owing to unfavourable weather crop condition at the beginning of August was rather bad.

*Nyasaland:* Yields are reported to have been excellent in the season now ended.

## Coffee.

*Brazil:* According to the National Coffee Institute the total quantity of coffee destroyed up to the end of June was 46,452,000 centals, of which about 1,345,000 was destroyed in the first half of this year.

*Haiti:* Exports in June amounted to 13,200 centals against 25,100 in June 1934, a decrease of 47.1 %. Exports in the first nine months of the current season were 378,500 centals against 682,300 in the corresponding period of 1933-34. The heavy decline of 46.9 % is due to the exceptionally small outturn this year.

*Surinam:* In the first quarter of 1935 the weather was favourable. Picking gave results much better than in the corresponding period of 1934.

*Indo-China:* The Liberia crop in Tonkin has been large.

*Uganda:* In the first decade of July both European and native crops has a promising appearance.

*Tanganyika:* In June picking was in full swing in Arusha and at lower altitudes in Moshi; production was expected to be good. In Bukoba heavy rains held up drying and there was a danger that later offerings would be musty.

## Groundnuts.

*United States:* Crop condition on 1 August in the notation of the country was 76.9 against 68.4 at the same date in 1934 and the ten-year average of 76.3

*Indo-China:* At the end of June harvesting was in progress in Tonkin and North Annam; it gave excellent results in some provinces of Tonkin and satisfactory results in North Annam. In Cambodia growth was on the whole satisfactory.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning ground-nut area:—

	1935	1934
	acres	
Area harvested in June . . . . .	62,700	62,700
Area harvested from 1 January to 30 June . .	238,700	237,400
Area planted up to the end of June . . . . .	145,900	154,900

*French West Africa:* In Senegal the crop has been small. At the end of February it was estimated that the total purchases made on the markets amounted to 733,000 thousand lb. unshelled and that owing to the deficitary production the natives had sold almost all their reserves of seed. A plan for the distribution of selected seeds of the M'Bambey variety, put into operation by the agricultural service of the Colony, should allow all the ordinary varieties to be replaced by selected varieties in four



years in the four large producing circles, thus increasing both outturn and quality in Senegal. A similar programme is being followed in Guinea, where the crop has so far only a small area but has now been extended throughout the northern sections of the Colony and the results in 1934 were satisfactory.

*Egypt:* Growth of groundnuts is satisfactory owing to suitability of weather and adequacy of water. Flowering is general. Formation of pods has started in early cultivations. Hoeing and watering are in progress.

*Italian Somaliland:* As weather and crop progress have been normal production is expected to be practically the same as last year.

*Union of South Africa:* According to the most recent estimate production this year is be about 188,200 centals against 279,000 in 1933-34 and 115,300 on the average of the five years ending 1932-33; percentages 67.5 and 163.2.

### **Colza and sesame.**

*Germany:* The statistics now give colza separately from rape. The area of the former in 1935 is, according to the most recent estimate, 78,300 acres. The area under colza and rape in 1934 was 66,100 acres and on the average of 1929-33 was 24,700 acres. Production of colza in 1935 is estimated at 1,190,000 centals (2,381,000 bushels) against 928,100 (1,856,000) of colza and rape together in 1934 and 290,300 (580,700) of the two crops in 1929-33.

*Austria:* According to the most recent estimate area cultivated to colza this year is about 4,400 acres as in 1934 and against 5,100 on the average of the five years ending 1933; percentages 100.0 and 87.5. The corresponding production is estimated at about 47,600 centals (95,200 bushels) against 54,900 (109,800) and 53,900 (107,800); percentages 86.7 and 88.4.

*Belgium:* According to the most recent estimate area cultivated to colza this year is 764 acres against 126 only in 1934 and 259 on the average of the five years ending 1933; percentages 605.9 and 294.3. The corresponding production is estimated at about 10,200 centals (20,400 bushels) against 1,690 (3,370) and 3,050 (6,090); percentages 605.9 and 335.4.

*Netherlands:* Condition of colza in mid-July was 68 against 63 in mid-June 1935 and 72 in mid-July 1934; that of mustard was 63,66 and 71 respectively according to the system of the country.

*Indo-China:* The present crop of sesame in Tonkin has given yields rather below average.

*Palestine:* At the beginning of August sesame was in advance in the southern plain and prospects were for a better yield than has been recorded for some years. In the north sesame crops show forward growth and good prospects for a satisfactory yield. The sesame harvest was expected to commence shortly.

*Italian Somaliland:* As weather and crop progress have been normal production of sesame is expected to be practically the same as last year.

## Sericulture.

*Bulgaria:* According to the second estimate the weight of silkworm eggs placed in incubation was 24,300 ounces, 10 % less than last year. Production of cocoons is therefore estimated at about 2,650,000 lb., 10.5 % less than the 2,956,000 lb. of 1934 and 28.7 % less than the 1929-33 average of 3,712,000 lb.

*Indo-China:* In Annam mulberries have given fairly good yields despite the drought and rearings have been fairly successful. In Cambodia leaf production was abundant up to the end of June and rearings were numerous.

*Japan:* At the beginning of August the weather was not favourable to mulberries. Fruit-formation was average.

*Syria and Lebanon:* According to the latest information the amount of silkworm eggs placed in incubation on 1 July in the State of Latakia was 3,810 ounces against 6,350 in 1934, a decrease of about 60 %. Rearing conditions in June were average in Latakia and normal in Syria and Lebanon. The area under mulberry in Lebanon is 37,100 acres against 39,500 in 1934, that is, 99.4 %.

## FODDER CROPS

The prevailing weather in Europe has so far not been very favourable to fodder production; the spring was cold to the end and was followed abruptly in most countries by a period of intense heat and drought, only a few areas benefiting by a combination of high temperatures and moisture.

In southwestern Europe, notably France and Italy, these conditions were especially marked. The cold wet weather that prevailed until the end of June allowed a fairly large crop to be harvested in France from permanent and temporary meadows and first cuts of legumes while hay was made in rather unfavourable conditions and its quality was rather mediocre; in Italy the crop left much to be desired in both quantity and quality. The period of drought and heat began toward the end of June and lasted until the middle of August and sometimes even later; second cuts and aftermath was everywhere greatly compromised and pastures were burnt up in the majority of districts. In Portugal the drought was earlier and seems to have caused still more serious losses while in Spain the weather was changeable and characterized by violent storms and rather hot humid weather in the centre and drought in other parts of the country.

The conditions that prevailed in Central and East-central Europe - Switzerland, Germany, Austria, Czechoslovakia, Poland - were fairly similar to those in France with, however, the essential difference that June was hot and wet and in consequence favourable to fodder crops, which were thus able to make up for the delay in growth previously noted and, as hay was made in good conditions, grasses and first cuts of legumes gave good results as to both quantity and quality. The drought in July and the first half of August had the same effects on the second cuts, aftermath and pastures as in Western Europe save in the

## The condition of fodder crops.

CROPS AND COUNTRIES	CROP CONDITION <sup>†)</sup>								
	1 August 1935			1 July 1935			1 August 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
<b>CLOVER:</b>									
Germany . . . . .	—	—	3.3	2.9	—	—	—	—	3.8
Austria 1) . . . . .	—	—	3.3	2.4	—	—	2.5	—	—
Estonia . . . . .	—	100	—	—	—	99	—	—	81
Netherlands:									
red clover . . . . .	—	—	2) 58	—	—	2) 63	—	—	1) 63
white clover . . . . .	—	—	—	—	2) 70	—	2) 72	—	—
Poland . . . . .	—	—	2) 2.9	—	—	2) 2.9	—	—	2) 2.6
United States . . . . .	89.5	—	—	—	—	—	—	—	—
Egypt (bersim). . . . .	—	—	—	—	—	89	—	100	—
<b>ALFALFA:</b>									
Germany . . . . .	2.8	—	—	2.4	—	—	—	—	3.6
Austria . . . . .	—	—	3.2	2.1	—	—	—	3.0	—
United States . . . . .	83.1	—	—	—	—	—	—	—	50.3
<b>MANGELS:</b>									
Germany . . . . .	2.9	—	—	2.8	—	—	—	3.0	—
Austria . . . . .	—	3.0	—	2.6	—	—	2.2	—	—
Denmark:									
Islands . . . . .	—	—	97	—	3) 100	—	—	—	82
Jutland . . . . .	—	—	—	—	—	3) 95	—	—	93
Scotland . . . . .	c) f)	—	—	—	—	—	—	f)	—
Norway 4) . . . . .	—	—	95	—	—	96	—	—	91
Netherlands . . . . .	2) 69	—	—	—	—	—	2) 68	—	—
Switzerland . . . . .	—	—	—	—	—	—	—	—	99
<b>TEMPORARY MEADOWS:</b>									
Austria 5) . . . . .	—	—	3.1	2.1	—	—	2.7	—	—
Bulgaria . . . . .	e)	—	—	—	—	—	—	—	—
Denmark:									
Islands . . . . .	—	—	91	—	—	96	—	—	78
Jutland . . . . .	—	—	—	—	—	84	—	—	87
Scotland . . . . .	d)	—	—	—	—	—	—	f)	—
Norway . . . . .	—	—	99	—	—	96	—	100	—
Sweden . . . . .	2) 3.3	—	—	—	—	—	—	—	2) 2.7
Switzerland . . . . .	—	—	—	109	—	—	—	—	—
<b>PERMANENT MEADOWS:</b>									
Germany:									
irrigated meadows . . . . .	2.8	—	—	2.4	—	—	—	—	3.3
other meadows . . . . .	—	—	3.2	2.7	—	—	—	—	3.9
Austria . . . . .	—	—	3.2	2.1	—	—	2.8	—	—
Denmark:									
Islands . . . . .	—	100	—	—	—	97	—	—	84
Jutland . . . . .	—	—	—	—	—	92	—	—	99
Scotland . . . . .	e)	—	—	—	—	—	—	f)	—
Estonia . . . . .	120	—	—	113	—	—	108	—	—
Norway 6) . . . . .	—	—	99	—	—	98	—	—	98
Netherlands 6) . . . . .	2) 72	—	—	2) 64	—	—	—	—	2) 58
Poland:									
ordinary meadows . . . . .	—	2) 3.0	—	—	—	2) 2.9	—	—	2) 2.3
low meadows . . . . .	2) 3.2	—	—	2) 3.1	—	—	—	—	2) 2.6
meadows improved . . . . .	2) 3.2	—	—	2) 3.2	—	—	—	—	2) 2.7
Sweden . . . . .	2) 3.2	—	—	—	—	—	—	—	2) 2.7
Switzerland . . . . .	—	—	—	108	—	—	—	—	—
<b>PASTURES:</b>									
Austria . . . . .	2.8	—	—	2.4	—	2.4	2.4	—	—
Denmark:									
Islands . . . . .	—	—	83	—	100	—	—	—	54
Jutland . . . . .	—	—	—	—	—	—	—	—	65
Netherlands . . . . .	2) 72	—	—	—	—	—	—	—	2) 48
Poland:									
permanent pastures . . . . .	—	—	2) 2.8	—	—	—	—	—	2) 2.2
temporary pastures . . . . .	—	—	2) 2.9	—	2) 3.0	—	—	—	2) 2.5
Switzerland . . . . .	—	—	—	103	—	—	—	—	—
United States . . . . .	81.1	—	—	—	—	—	—	—	39.6

a) Above the average. — b) Average. — c) Below the average. — d) Excellent. — e) Good. — f) Average. — g) Bad. — <sup>†)</sup> See explanation of the various systems on page 577. — 1) Red clover. — 2) At the middle of the preceding month. — 3) At the middle of the month. — 4) Turnips. — 5) Klee grass. — 6) Meadows for hay.

upland areas, where the alps remained satisfactory in some parts of Poland that had been well watered in July.

In Danubian Europe – Yugoslavia, Hungary, Romania, Bulgaria – the spring was at first cold and somewhat dry; the precipitation in June was very beneficial and unit-yields of grasses and of first cuts of legumes varied from average to good or even very good, as in Bulgaria. In July there was a renewal of drought on the Danube plains, especially in Romania and Hungary, though fairly cool and wet weather brought benefit to the crops in Yugoslavia.

The weather was somewhat variable in Northern Europe – Lithuania, Estonia, Latvia, Sweden, Norway, Denmark, the Netherlands and Belgium; though rather unfavourable in Belgium and Lithuania, where haymaking was hindered by rain and quality was rather mediocre, it was good in the Netherlands and Sweden; in the other countries results varied with district and according as temporary or permanent meadows were predominant but were on the whole average. In the west, in Belgium and the Netherlands, the drought was beginning to be felt by the end of July.

The British Isles benefited by favourable weather on the whole, fine and warm in July, and results were there satisfactory.

It is difficult to draw any general conclusion from facts mutually so disparate. It may, however, be said that, save in some northern or southeastern countries there has not been a large production of fodder in Europe this year; in some countries, as in Italy and Switzerland, production appears to have been even distinctly deficitary.

Drought has prevailed in the Soviet Union and in French North Africa, where crops have suffered greatly and unit-yields are reported to be somewhat unsatisfactory. In North America production is very good in the United States but somewhat below average in Canada.

P. V.

\* \* \*

*Austria* Mangels are late owing to the dry weather. Clover that has been once cut has given a satisfactory aftermath. Red clover has given a good second cut but the aftermath has been checked by the drought. Alfalfa has given a second cut and the aftermath is growing slowly. The first cut from meadows with several crops was all brought in. Grass dried rapidly and was stored in good conditions and in abundant quantity. Aftermath from single-cut meadows leaves much to be desired owing to the lack of rain.

The first cut of fodder crops gave the following results.

		1935	1934	Average 1929-1933	% 1934 — 1930	% 1935 Average = 100
Red clover . . . . .	(ooo centals)	8,488	6,415	7,527	132.3	112.8
	(ooo sh. tons)	424	321	376		
Alfalfa . . . . .	(ooo centals)	2,414	1,764	2,273	136.0	106.2
	(ooo sh. tons)	121	88	114		
Kleegrass . . . . .	(ooo centals)	3,208	2,072	2,822	154.8	113.7
	(ooo sh. tons)	160	104	141		
Permanent meadows.	(ooo centals)	43,321	38,601	44,110	112.0	98.2
	(ooo sh. tons)	2,166	1,935	2,206		

*Belgium* The hay crop was abundant but quality was only average. Clovers gave a good first cut but a small second one.

*Bulgaria* Toward the end of July the first cut of permanent meadow was completed while temporary meadows were mown for the second time. Production of fodder crops was large and of good quality.

*Estonia* Weather in July was favourable to growth of grass in the south but in the north was less satisfactory. Vegetation of permanent meadows was better than in temporary meadows.

\* *Irish Free State*: July was almost continuously bright, warm and dry, with heavy dews at night, and was favourable to growth. All crops made satisfactory progress. There were ample supplies available for all normal requirements. Yields were above average for the season.

*Finland* Production of the principal fodder crops in 1935 compared with that of last year and the five-year mean was as follows

		1935	1934	Average 1929 to 1933	% 1935 1934 = 100 Average = 100	
Hay from permanent						
meadows . . . .	(ooo centals)	8,510	5,908	8,404	144.0	101.3
	(ooo sh. tons)	425	295	420		
Hay from temporary						
meadows . . . .	(ooo centals)	72,643	67,701	60,300	107.3	120.5
	(ooo sh. tons)	3,632	3,385	3,015		
Roots and tubers for						
fodder . . . . .	(ooo centals)	15,851	15,149	15,151	104.6	104.6
	(ooo sh. tons)	793	757	758		
Fodder turnips . .						
	(ooo centals)	9,678	10,455	12,113	92.6	79.9
	(ooo sh. tons)	484	523	606		

*France* All crops - legumes, meadows and pasture - suffered greatly from the intense heat and drought that prevailed after the end of June. The storms of mid-July were inadequate to bring any appreciable amelioration and in several areas the aftermath was in mid-August highly compromised. Good weather, however, favoured haymaking in the west.

*Great Britain and Northern Ireland* Dry, sunny and warm weather prevailed in most districts throughout July, save in the northwest of England, where a fair amount of rain fell during the third week of the month, the drought was broken only by local showers.

In England and Wales mangels generally benefited by the warm weather and most crops were clean and healthy, the yield was expected to be a little less than normal. Turnips and swedes were variable in England and Wales, good plants were obtained in places but fly was prevalent in many areas and some resowing was necessary and yield was not expected to reach average. In Scotland early-sown turnips made satisfactory progress but later sowings made slower growth and were rather below

average at the beginning of August. Conditions had been favourable for hoeing and cleaning but all root crops were in need of rains.

The hay harvest made rapid progress thanks to the extremely favourable weather. Although a late start was made subsequent progress was so good that in England and Wales by the end of July the bulk of the hay had been secured in excellent condition, the quality being good and the yield heavier than anticipated. Pasture grass was fairly plentiful in England and Wales until the end of July, when pastures became very bare and in some parts badly scorched. In Scotland grass was in most districts ample.

In Northern Ireland July was on the whole bright and warm. Haymaking was practically completed under ideal conditions, quality was very good and yields rather better than anticipated. Pastures were generally in fairly good condition for the time of year and providing sufficient feed but in many areas, particularly where the soil is light; the shortage of rain was reflected in the burnt-up condition of the herbage. Mangels made good progress and, despite uneven growth in some areas, were very promising. Early-sown turnips were in excellent condition but second and late sowings were not so forward owing to the dry ground, in most areas, however; satisfactory returns were expected.

The area of certain fodder crops in 1935, with comparisons with those of 1934 and the average for the preceding five years, is as follows:

	1935	1934	Average 1929-33	% 1935 1934 100	Aver 100
	(000 acres)				
<b>Mangels:</b>					
England and Wales . . . . .	251	246	265	102.1	94.7
Scotland . . . . .	2.5	1.7	1.2	144.0	206.5
<b>Turnips and Swedes:</b>					
England and Wales . . . . .	497	510	625	95.8	79.5
Scotland . . . . .	351	354	361	99.3	97.3
<b>Temporary meadows (for hay):</b>					
England and Wales . . . . .	1,388	1,280	1,520	107.7	90.8
Scotland . . . . .	395	394	406	100.3	97.3
<b>Temporary meadows (not for hay)</b>					
Scotland . . . . .	1,019	1,023	1,000	99.6	92.7
<b>Permanent meadows (for hay):</b>					
England and Wales: . . . . .	4,637	4,823	4,734	96.2	97.9
Scotland . . . . .	185	181	170	102.1	108.6
<b>Permanent meadows (not for hay):</b>					
Scotland . . . . .	1,431	1,428	1,401	100.2	102.2

**Hungary:** Condition of mangels was not satisfactory owing to the drought. Second cut of clover and third of alfalfa gave poor unit-yields. Aftermath was not well developed and a very small outturn was expected. Pastures, save in the lowlying areas, were burnt up by the sun and gave insufficient feed.

**Italy:** Fodder crops were appreciably damaged by the drought and production has been small. First-year meadows in particular suffered. Vegetation on pastures has left much to be desired.

*Latvia:* Condition of clover on 15 July was average according to 39.7 % of the crop correspondents, above average according to 9.6 % and below average according to 50.7 %. The corresponding figures for permanent meadows were 43.2 %, 47.3 % and 9.5 %.

*Lithuania:* Haymaking began at the end of June and continued to the end of July. It was carried out in bad conditions as the rains continually hindered mowing.

The quantity of hay mown, both of clover and of meadow hay, was considerably larger than last year but quality was expected to be inferior owing to excessive humidity.

*Norway:* Condition of kohl-rabi on 1 August was 89, as on 1 July 1935, against 93 on 1 August 1934.

*Netherlands:* Condition of mangels and of white clover was satisfactory in mid-July but not that of red clover, which had suffered from disease. In general, however, the rainy weather, followed by a period of drought, was very favourable to growth of grass, of which the crops surpassed expectations.

*Poland:* Condition of clover, meadows and pastures improved toward 15 July in the areas where rains were plentiful, while in those parts of the country affected by drought growth of grass was checked and pastures were dried up. The first cut was made in favourable conditions save in the *départements* of Bialystok, Wilno and Nowogrodek.

The changeable weather in the first half of August had a somewhat unfavourable influence on fodder crops, particularly in the first week of the month. In Great Poland clover suffered from drought while in the east of the country frequent rains caused the loss of the greater part of the first cut. Toward the middle of the month the second cut of grasses and clover was begun.

*Switzerland:* After a first cut that entirely met all expectations whether as to quality or as to quantity, meadows suffered from drought and development was less satisfactory. The second cut left something to be desired and in the areas exposed to drought the turf was in places literally dried up. In many localities it was necessary to take a premature second cut to prevent total loss of the grass, yields of aftermath are therefore far below the average. In the areas where haymaking was late vegetation was entirely checked and the future is regarded with anxiety. In many places, owing to the scarcity of green fodder, it was necessary to begin using hay. Though the alps were generally late in being occupied they everywhere gave good yields. Thanks to the heat, vegetation was fairly luxuriant while drought damage occurred only here and there.

*U. S. S. R.:* The drought in June and the frequent rains in July, that is, at the time of mowing, compromised the hay crop, which was expected to be smaller than that of last year. According to the Commissariat for Agriculture on 31 July 91 million acres or 67.2 % of the Plan had been mown. Hay had been stacked at the same date on 74.1 % of the area mown.

*Argentina* (Telegram of 23 August): Condition of fodder crops is mediocre and pasture prospects are poor.

*Canada.* According to the most recent estimate area cultivated to alfalfa this year is about 755,000 acres against 678,900 in 1934 and 699,700 on the average of

the five years ending 1933; percentages 111.2 and 107.9. The production from the first cut is estimated at about 29,920,000 centals (1,496,000 short tons) against 26,562,000 (1,328,100) and 33,115,200 (1,655,800); percentages 112.6 and 90.4.

*United States* (Telegram of 10 August): According to the most recent estimate production of tame hay this year is about 1,504 million centals (75.2 million short tons) against 1,039 million (51.9 million) in 1934 and 1,366 million (68.3 million) on the average of the five years ending 1933; percentages 144.8 and 110.1.

Production of wild hay is about 232 million centals (11.6 million short tons) against 95 million (4.7 million) in 1934 and 204 million (10.2 million) on the average of the five years ending 1933; percentages 244.3 and 113.9.

*Palestine*: Satisfactory yields of oats and vetch were reaped from demonstration plots, and the demand for oat and vetch seed continues to increase. Farmers to whom vetch seed was distributed reaped satisfactory crops and in many instances vetch will replace *kersenneh* as the leguminous crop in the rotation.

*Algeria*: The very high temperatures and drought that prevailed in July checked vegetation. In Algiers, however, the fine weather allowed the crops to be brought in, albeit often too late.

*Egypt*: Harvesting of *bersim* was over at the beginning of July. In the areas where watering was stopped by law before 10 May, in order to prevent the propagation of the cotton worm (*Prodenia littoralis*, Boisduval), the yield was normal. Other lands, in Lower Egypt, have been severely infested by the cotton worm. Consequently, these areas have been cut and this resulted in a great loss to the total crop. In fact, crop condition, which was 100 on 1 June, dropped to 89 on 1 July.

*French Morocco*: The persistent drought and great heat have caused enormous damage to meadows and pastures.

*Tunisia*: At the end of July pasture was almost dried up in all districts. Fodder gave satisfactory yields and was of good quality in the south, in the Sousse district but gave no yield in that of Sfax.

## LIVESTOCK AND DERIVATIVES

### Livestock in Denmark (in country only).

#### Cattle (thousands).

Classification	1935	1934	1933	1932	1931	1930	1929
Cattle . . . . .	3,073	3,061	3,134	3,237	3,208	3,057	2,989
Bulls of one year and over . .	62	64	78	87	79	73	75
Oxen of one year and over . .	50	47	59	62	54	59	78
Cows and heifers of two years and over that have already calved	1,646	1,718	1,770	1,739	1,676	1,608	1,556
Heifers of one year and over that have not yet calved. . . . .	532	518	542	582	566	543	545
Calved under one year . . . . .	783	714	685	767	833	774	735



## Pig population (thousands).

CLASSIFICATION	1935					1934			
	13 July	25 May	13 April	1st March	15 January	1st Dec.	15 October	1st Sept.	16 July
Boars for breeding . . . . .	20	20	20	20	19	20	20	21	21
Sows in farrow for first time . . . . .	87	83	87	89	72	48	29	40	66
Other sows in farrow . . . . .	188	172	154	166	181	190	187	180	165
Sows in milk . . . . .	78	88	98	81	77	74	82	78	89
Sows not yet covered (and not for slaughter) . . . . .	25	25	22	19	19	21	25	29	24
Sows for slaughter . . . . .	11	12	12	14	9	11	10	10	10
<i>Total of sows . . . . .</i>	<i>389</i>	<i>380</i>	<i>373</i>	<i>369</i>	<i>358</i>	<i>344</i>	<i>333</i>	<i>337</i>	<i>355</i>
Sucking pigs not weaned . . . . .	670	724	813	695	668	653	720	680	776
Young and adult pigs for slaughter:									
Weaned pigs under 35 kg. . . . .	761	797	740	738	762	745	734	790	738
Pigs of 35 and under 60 kg. . . . .	729	635	629	637	667	646	711	661	648
Fat pigs of 60 kg. and over. . . . .	456	500	463	508	451	621	590	503	527
<i>Total pigs . . . . .</i>	<i>3,025</i>	<i>3,056</i>	<i>3,038</i>	<i>2,967</i>	<i>2,925</i>	<i>3,029</i>	<i>3,108</i>	<i>2,992</i>	<i>3,061</i>

## Livestock in Hungary.

In the following table are given the principal results for 1935 of the annual spring enumeration of livestock carried out on 31. March (according to § 23 of law XII of 1894) on the occasion of the veterinary inspection; comparisons are made with the corresponding data for the preceding five years and for 1911 (present territory).

CLASSIFICATION	1935	1934	1933	1932	1931	1930	1911
<i>Cattle 1)</i> . . . . .	<i>1,755,524</i>	<i>1,677,712</i>	<i>1,696,615</i>	<i>1,818,834</i>	<i>1,813,894</i>	<i>1,784,633</i>	<i>2,149,756</i>
of which: cows 1) . . . . .	913,727	903,228	903,830	907,612	904,166	906,400	—
<i>Horses . . . . .</i>	<i>803,988</i>	<i>803,033</i>	<i>819,871</i>	<i>845,548</i>	<i>864,571</i>	<i>860,379</i>	<i>896,498</i>
of which:							
mares over 3 years old . . . . .	407,957	412,131	418,593	435,742	446,207	432,589	—
mares under 3 years old. . . . .	57,756	52,672	57,545	56,963	60,239	73,068	—
adult geldings . . . . .	271,344	276,429	278,683	287,529	289,695	272,339	—
<i>Asses . . . . .</i>	<i>3,872</i>	<i>3,809</i>	<i>3,985</i>	<i>3,991</i>	<i>4,291</i>	<i>4,294</i>	<i>7,994</i>
<i>Mules . . . . .</i>	<i>1,027</i>	<i>954</i>	<i>1,100</i>	<i>1,059</i>	<i>1,109</i>	<i>1,242</i>	<i>424</i>
<i>Sheep . . . . .</i>	<i>1,227,542</i>	<i>1,087,464</i>	<i>1,056,218</i>	<i>1,210,491</i>	<i>1,440,409</i>	<i>1,463,834</i>	<i>2,406,041</i>
of which:							
ewes over 1 year old . . . . .	745,436	664,219	659,893	739,531	855,136	880,018	—
ewes under 1 year old. . . . .	169,888	154,077	135,164	163,056	196,384	184,472	—
wethers over 1 year old . . . . .	136,942	115,685	122,661	150,590	185,480	211,282	—
<i>Goats . . . . .</i>	<i>29,858</i>	<i>25,870</i>	<i>22,840</i>	<i>22,749</i>	<i>24,027</i>	<i>22,184</i>	<i>20,647</i>
<i>Pigs . . . . .</i>	<i>3,175,822</i>	<i>2,502,163</i>	<i>1,899,479</i>	<i>2,361,195</i>	<i>2,714,635</i>	<i>2,361,566</i>	<i>3,322,407</i>
of which:							
sows over 1 year old for fattening. . . . .	561,769	460,139	356,640	439,129	494,490	438,073	—
sows over 1 year old for meat. . . . .	117,938	83,150	57,129	79,712	77,330	58,695	—
sows under 1 year old for fattening . . . . .	759,519	595,756	438,595	564,775	678,252	598,790	—
sows under 1 year old for meat . . . . .	208,784	138,445	93,733	129,711	123,831	88,757	—
castrated pigs over 1 year old. . . . .	284,779	230,098	205,382	217,911	237,289	255,664	—
castrated pigs under 1 year old for fattening . . . . .	703,786	587,456	462,286	547,250	688,422	591,845	—
castrated pigs under 1 year old for meat . . . . .	221,527	158,924	113,100	153,215	140,426	105,545	—

1) Including buffaloes.

All species show an increase on the 1934 numbers; the most marked being for pigs, which in 1935 have attained the maximum since the war and almost the 1911 level.

### Livestock in Lithuania.

	30 June 1935	30 June 1934	30 June 1933	30 June 1932	30 June 1931	30 June 1930
<i>Horses</i> . . . . .	579,390	579,907	586,673	585,730	597,050	559,000
Foals . . . . .	40,720	39,290	41,552	45,530	59,421	53,700
Horses of 1 to 3 years	102,480	102,710	99,210	90,230	104,356	71,900
Horses of 3 years and over . . . . .	436,190	437,900	445,911	449,970	433,273	433,400
<i>Cattle</i> . . . . .	1,311,850	1,315,340	1,314,074	1,304,870	1,297,376	1,170,000
Calves . . . . .	224,960	223,760	209,464	209,180	266,519	202,400
Milk cows . . . . .	819,740	819,040	831,813	795,710	753,963	696,000
Cattle of 1 year and over . . . . .	267,150	267,160	272,797	299,980	276,894	271,600
<i>Sheep</i> . . . . .	1,304,140	1,309,850	1,321,619	1,316,970	1,212,454	1,097,000
Lambs . . . . .	760,640	763,470	772,352	766,060	685,586	607,870
Sheep of 1 year and over . . . . .	543,500	546,380	549,267	550,910	526,868	489,130
<i>Pigs</i> . . . . .	1,257,970	1,288,440	1,305,824	1,389,580	1,568,543	1,136,000
Young pigs . . . . .	739,450	761,620	781,989	839,330	984,674	657,100
Pig of 6 months and over . . . . .	518,520	526,820	523,835	550,250	583,869	478,900
<i>Poultry</i> . . . . .						
Fowls (not including chickens) . . . . .	2,841,500	2,860,770	2,949,920	3,082,720	2,804,500	2,262,000
Geese (including gos- lings) . . . . .	1,005,960	1,008,840	985,525	1,024,120	920,500	795,000

### Livestock in Czechoslovakia.

In the following table are given the annual data for livestock. The figures, for 1 January 1935, are provisional those for the four other years are final.

Years	Horses	Cattle		Sheep	Goats	Pigs	
		Total	Cows			Total	Brood sows of 6 months and over
1935 (1-I) . . . . .	701,093	4,303,238	2,499,621	508,393	956,888	3,034,992	453,026
1934 (1-I) . . . . .	700,658	4,404,796	2,516,905	475,881	929,631	3,429,919	557,621
1933 (1-I) . . . . .	707,579	4,341,351	2,476,570	465,093	876,771	2,621,235	445,282
1931 (31-XII) . . . . .	—	4,450,965	2,464,616	531,125	—	2,575,921	348,760
1930 (31-XII) . . . . .	—	4,457,522	2,433,830	607,612	—	2,776,215	441,821

From the data of 1 January 1935 and those of the preceding year it will be seen that, while horses remain practically at the figure of the preceding year, there was an increase in 1934 of 2.9 % for goats and on of 6.8 % for sheep, a decrease of 2.3 % for cattle and one of 11.5 % for pigs.

Dividing the country into two large areas, at western (Bohemia, Moravia and Silesia) and an eastern (Slovakia and Subcarpathian Russia), it will be seen that in 1934 there was a decrease in all species and categories excepting goats, for which there was a small increase, in the western, while there was a general increase in the eastern.

### Livestock in Colombia.

The following are the numbers of livestock in Colombia in 1934 compared with those in 1932.

	1934	1932
Horses . . . . .	972,000	925,733
Asses . . . . .	302,900	288,445
Mules . . . . .	475,900	453,232
Cattle . . . . .	7,971,700	7,592,020
Sheep . . . . .	872,400	830,807
Goats . . . . .	543,500	517,610
Pigs . . . . .	1,621,900	1,544,617

The number of animals slaughtered in 1934 and in 1933, according to the Ministry of Agriculture and Commerce, was as follows:

	1934	1933
Cattle . . . . .	1,016,260	959,572
Sheep . . . . .	154,196	85,347
Pigs . . . . .	632,586	541,882

### Livestock in Algeria.

The following table gives the numbers of the different categories of livestock on 1 January 1935 and for the preceding ten years.

The most striking facts indicated are, on the one hand, the further appreciable decrease in the number of cattle, all the more noteworthy since Algeria, which has so far been an exporter of live cattle, in 1934 imported over 11,000

Years	Horses	Mules	Asses	Cattle	Sheep	Goats	Pigs	Camels
	(Thousands)							
1935 . . . . .	173	181	349	850	5,845	2,807	60	179
1934 . . . . .	171	177	332	884	5,513	2,830	52	170
1933 . . . . .	168	175	332	896	5,262	2,654	66	169
1932 . . . . .	168	170	319	893	5,269	2,743	86	201
1931 . . . . .	167	169	305	872	4,671	2,631	83	210
1930 . . . . .	173	169	302	938	7,172	3,267	87	201
1929 . . . . .	163	165	296	897	6,196	3,050	89	185
1928 . . . . .	164	164	279	887	5,614	2,920	89	173
1927 . . . . .	162	164	275	850	5,076	2,648	95	156
1926 . . . . .	167	165	285	946	6,786	3,126	93	173
1925 . . . . .	161	161	282	892	6,171	3,033	89	176
1924 . . . . .	163	157	292	892	5,790	2,805	93	150
1914 . . . . .	203	185	268	1,093	9,140	3,794	112	213

head and has also increased its net imports of meat, and, on the other hand, the great increase in the number of sheep, which demonstrates the reconstitution of the Algerian flocks and has been favoured this year by a good winter.

Besides these particularly salient features a characteristic increase is to be noted in the number of draught animals, saddle-horses, mules, donkeys and camels, and a marked recovery in pig-rearing.

### Sheep in New Zealand.

The interim return of sheep as at 30 April 1935 shows a further increase of 1.11 % or over 300,000 in the total for the Dominion. This is the second consecutive increase following the succession of decreases in the three years from 1931 to 1933, which reduced flocks from the record figure of 30,840,000 attained in 1930. While there was an increase of 2.62 % in the North Island, which has, as last year, 53 % of the total Dominion sheep population, there was a decrease of 0.61 % in the South Island. In the North Island the greatest increase was in Auckland, with 5.78 %; in the South Island only Otago showed an increase, with 0.02 %:

Years	(Thousands)
1935 . . . . .	28,967
1934 . . . . .	28,649
1933 . . . . .	27,756
1932 . . . . .	28,692
1931 . . . . .	29,793
1930 . . . . .	30,841
1929 . . . . .	29,051
1928 . . . . .	27,134
1927 . . . . .	25,649
1926 . . . . .	24,905

### Current information on livestock and derivatives.

*Belgium:* Health of stock was satisfactory. Owing to the dry weather pastures no longer provided sufficient feed. Consequently there was little gain in weight and a diminution in milk yield. Supplementary feeds were indispensable and increased costs of production.

*France:* In mid-August stock was feeling the effects of the heat and drought that had prevailed since the end of June. Milk and butter production had declined, especially in quality.

The decrease in numbers of poultry was more rapid and still more appreciable.

*Great Britain and Northern Ireland:* Milk yields in July showed a general decline in England and Wales, especially in certain areas where pastures were dry or water supplies inadequate, but in Scotland were generally normal for the season.

In Northern Ireland cattle thrive well in July and were in a normal healthy condition. Flies, more particularly the ox-warble fly, have, however, been very active this summer and have caused serious annoyance to cattle. Purchased feed-stuffs continued to be plentiful and prices were a little cheaper. Spring and summer calving was well forward. Total milk yield was reported to be smaller than in June.

*Netherlands:* The feed situation for milk cows was good, thanks to the vigorous development of the grass. In comparison with the figures of last year milk yields hardly differed from normal in South Holland and North Brabant; they were about 5 % smaller in Groningen, Limburg and Zeeland. In North Holland there was an increase of 3 %, in Friesland and Utrecht increases of 5 % and in the other provinces increases of from 10 % to 12 %.

*Palestine:* Stock are generally in good condition, there will be no shortage of forage.

*Argentina* (Telegram of 23 August): Health of livestock is mediocre.

According to the Ministry of Agriculture at Buenos Aires production of wool in 1934-35 was equivalent to that in the two preceding seasons, namely about 3,640,000 centals, but about 200,000 centals larger than in 1931-32.

*Algeria:* Health of stock was fairly satisfactory at the end of July; tick fever, which was prevalent in a mild form in Oran and Algiers, was declining. On the other hand the animals suffered from the drought, which considerably impoverished permanent pastures and supplies of drinking water; in the sublittoral zone of Algiers condition of cattle reflected this state of affairs but sheep were still finding enough feed: on the stubble elsewhere condition of the animals was still fairly satisfactory at the end of July.

*French Morocco:* Livestock suffered greatly from the prolonged drought and heat. The grazing tracts, prematurely dried up, do not allow the usual maintenance for herds, which find no more feed in the stubble; the natural reserves of water are almost exhausted and the water-table is very low. At the end of July the situation was becoming critical, especially in the south.

*Tunisia:* At the end of July stock were beginning to suffer from the poverty of the pasturage. Only stubble and here and there some coast pastures continued to give some feed.

*Union of South Africa:* During June beneficial and soaking rain fell again throughout the Cape Province, the southern and south-eastern border districts of the Orange Free State and the middleveld and coastal areas of Natal.

The month was characterised by exceedingly cold weather and sharp frost, and snow fell at various places.

Only in one or two districts of the Transvaal farmers complained of lack of grazing and water shortage; generally there was an abundance of grazing and the condition of stock was fair to good. A successful lambing season and a good wool clip were expected. Though the extraordinarily cold weather affected large stock adversely and some losses occurred amongst lambs, simultaneously practically all stock diseases disappeared, and only a few flocks in the north-eastern districts of the Orange Free State were still infected with internal parasites.

### LATEST NEWS

*U. S. S. R.:* In the following table are given the official figures of area and production of the principal crops in 1934 compared with those in 1933 and the five-year average.

PRODUCTS	AREA						PRODUCTION							
	1934	1933	Average 1928 to 1932	% 1934		Average 1928 to 1932	1934	1933	Average 1928 to 1932	% 1934				
				1933	Average					1933	Average			
												= 100	= 100	
1,000 acres				1,000 centals			1,000 bushels			= 100	= 100			
Wheat . . .	87,098	82,141	80,349	106.0	108.4	670,428	611,344	478,581	1,117,358	1,018,886	797,619	109.7	140.1	
Rye . . .	59,371	62,721	65,373	94.7	90.8	443,792	533,300	472,981	792,488	952,324	844,612	83.2	93.8	
Barley . . .	20,960	17,933	18,043	116.9	116.2	150,797	173,063	131,661	314,165	360,555	274,298	87.1	114.5	
Oats . . .	44,507	41,224	42,956	108.0	103.6	416,675	339,733	313,234	1,302,100	1,061,660	978,849	122.6	133.0	
Maize . . .	9,093	9,777	9,616	93.0	94.6	84,658	105,822	75,663	151,175	188,969	135,113	80.0	111.9	
Potatoes . .	15,149	13,976	14,518	108.4	104.3	...	1,119,952	1,011,881	...	1,866,549	1,686,435	...	...	
									000 sh. tons					
Sugar-beet	2,924	2,992	2,722	97.7	107.4	250,446	198,196	216,142	12,522	9,910	10,807	126.4	115.9	
									000 bales of 478 lb.					
Cotton ginned	4,787	5,070	3,914	94.4	122.3	9,222	9,222	7,393	1,929	1,929	1,547	100.0	124.7	
									000 bush.					
Linseed . . .	5,814	6,698	6,094	86.8	95.4	15,432	16,314	16,202	27,558	29,133	28,932	94.6	95.3	
									000 lb					
Flax (fibre) .	5,214	5,917	4,767	88.1	109.4	11,685	12,125	9,585	1,168,454	1,212,546	958,494	96.4	121.9	
Hemp (fibre)	1,478	1,866	2,174	79.2	68.0	3,102	3,397	5,879	310,191	339,733	587,887	91.3	52.8	

## TRADE

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	0	2	0	0	220	2,000	0	0	2,242	0
Hungary	375	670	0	0	6,312	15,408	0	0	15,496	0
Lithuania	7	0	0	0	580	0	0	0	0	0
Poland	183	368	0	0	668	908	9	507	1,596	507
Romania	963	0	0	0	2,059	141	4	11	141	11
Yugoslavia	49	117	0	0	2,482	425	2	0	553	0
U. S. S. R.	...	...	...	...	1,232	18,629	3)	814	3)	19,271
Canada	3,898	11,056	...	...	81,133	94,171	2	7	101,960	7
United States	44	240	911	540	1,422	11,274	14,634	6,325	11,775	6,757
Argentina	7,156	9,489	—	—	98,518	74,865	—	—	84,724	—
Chile	...	...	...	...	1)	653	1)	395	1)	765
Syria and Lebanon	...	...	...	...	1)	225	1)	408	1)	183
Algeria	423	245	26	40	6,621	5,878	311	280	6,411	340
French Morocco	...	...	...	...	3)	2,423	3)	3,435	3)	0
Tunisia	317	209	...	...	1)	1,625	809	181	1,109	1,124
Australia	1,903	3,501	0	0	42,170	32,684	0	0	36,090	0
New Zealand	...	...	...	...	2)	0	2)	181	2)	13
<i>Importing Countries:</i>										
Germany	0	672	220	1,832	119	11,982	6,925	15,274	12,516	17,163
Austria	0	0	503	478	0	0	4,142	4,370	0	4,866
Belgium	101	128	1,797	2,019	1,673	1,338	23,431	24,859	1,459	26,226
Denmark	0	0	472	333	31	9	10,130	5,886	9	6,764
Spain	0	0	0	0	0	0	0	0	0	0
Estonia	26	0	0	0	119	0	0	0	0	0
Irish Free State	0	0	708	877	0	0	8,649	9,345	0	10,280
Finland	—	—	176	95	—	—	1,188	970	0	1,098
France	3,611	0	1,202	888	21,400	1,327	13,973	14,947	1,905	16,493
Gr. Brit. and N. Irel.	66	95	9,778	9,595	721	739	103,664	109,753	754	120,064
Greece	...	...	...	...	1)	0	1)	6,535	1)	5,573
Italy	0	0	2,542	981	9	7	10,816	9,423	7	9,903
Latvia	148	0	0	0	293	0	0	0	0	0
Norway	0	0	483	434	0	0	3,642	3,452	0	3,761
Netherlands	340	265	604	1,354	765	1,296	10,326	12,855	1,303	13,649
Portugal	—	—	0	24	—	—	163	342	—	384
Sweden	265	7	42	60	1,512	9	849	1,023	375	1,089
Switzerland	0	0	1,270	1,032	2	7	9,592	9,645	7	10,558
Czechoslovakia	0	0	68	0	2	4	701	86	4	88
Ceylon	—	—	11	0	—	—	33	7	—	9
China	9	29	1,607	564	273	157	10,465	11,202	185	11,202
India	2	4	0	0	243	42	101	99	44	165
Japan	—	—	688	593	—	—	10,119	9,176	—	9,811
Egypt	0	0	0	0	51	9	1,257	7	9	7
Union of South Afr.	...	...	...	...	1)	2	1)	527	1)	29
<b>Totals</b>	<b>19,886</b>	<b>27,097</b>	<b>23,108</b>	<b>21,743</b>	<b>275,558</b>	<b>278,396</b>	<b>253,610</b>	<b>257,594</b>	<b>306,228</b>	<b>279,724</b>
<b>Rye. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	0	317	381	46	51	6,790	5,265	2,207	6,945	2,209
Bulgaria	0	0	0	0	0	18	0	0	18	0
Estonia	168	0	0	0	659	0	22	0	0	0
Hungary	15	355	0	0	721	3,455	0	0	3,455	0
Latvia	0	0	0	0	1,911	0	0	0	0	0
Lithuania	13	0	0	0	1,197	49	0	0	49	0
Poland	1,263	1,482	0	0	11,385	10,161	0	229	10,479	229
Romania	0	0	0	0	0	0	0	0	0	0
Sweden	101	0	2	0	1,949	15	22	31	42	31
U. S. S. R.	...	...	...	...	3)	547	3)	2,392	—	3,397
Canada	141	9	0	0	545	1,444	11	0	1,444	0
Argentina	397	126	—	—	5,664	1,953	—	—	2,178	—
Algeria	0	0	0	0	24	15	0	0	22	0
<i>Importing Countries:</i>										
Austria	0	0	18	130	0	0	1,715	163	0	172
Belgium	4	0	183	132	13	11	1,726	4,705	11	4,804
Denmark	0	0	251	348	4	0	3,788	5,642	0	5,891
Finland	0	0	154	168	0	0	298	1,098	0	1,173
France	0	0	0	0	4	0	33	71	0	71
Italy	0	0	13	15	0	0	168	110	0	126
Norway	0	0	309	437	0	0	2,337	2,937	0	3,201
Netherlands	0	0	101	560	227	7	1,647	4,949	7	5,110
Switzerland	0	0	26	18	0	0	152	130	0	137
Czechoslovakia	0	0	2	4	4	18	18	18	18	20
United States	0	0	448	1,151	0	9	5,717	6,484	9	7,055
<b>Total</b>	<b>2,102</b>	<b>2,289</b>	<b>1,888</b>	<b>3,007</b>	<b>24,905</b>	<b>26,337</b>	<b>22,919</b>	<b>28,774</b>	<b>28,074</b>	<b>30,229</b>

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat flour. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany . . . . .	29	529	0	2	617	5,124	73	51	5,578	55
Bulgaria . . . . .	0	2	0	0	0	90	0	0	93	0
Spain . . . . .	0	0	0	0	0	31	0	0	31	0
France . . . . .	260	333	101	93	4,050	3,896	1,455	851	4,149	937
Hungary . . . . .	115	148	0	0	283	1,451	0	0	1,466	0
Italy . . . . .	174	492	2	13	3,497	3,605	93	304	3,849	320
Lithuania . . . . .	0	0	0	0	0	22	0	0	22	0
Poland . . . . .	150	26	0	0	586	271	0	0	282	0
Romania . . . . .	0	0	0	0	0	7	0	0	7	0
Yugoslavia . . . . .	2	4	0	0	37	53	0	0	55	0
U. R. S. S. . . . .	...	...	...	...	558	655	205	3)	1,118	0
Canada . . . . .	842	864	33	37	8,536	9,892	373	128	10,690	176
United States . . . . .	496	428	7	0	7,152	7,022	7	2	7,584	2
Argentina . . . . .	137	240	—	—	1,922	2,242	—	—	2,447	—
Chile . . . . .	...	...	...	...	44	22	51	42	22	55
India . . . . .	7	24	0	0	269	247	4	2	260	2
Japan . . . . .	545	357	2	0	6,759	5,179	26	22	5,569	22
Algeria . . . . .	42	84	11	9	862	805	99	95	904	101
French Morocco . . . . .	...	...	...	...	29	49	0	3)	49	9
Tunisia . . . . .	43	24	2	13	597	187	62	247	223	249
Australia . . . . .	1,071	862	0	0	13,100	10,062	2	0	10,922	0
<i>Importing Countries:</i>										
Austria . . . . .	0	0	152	190	2	0	739	961	0	992
Belgium . . . . .	11	2	2	44	40	146	432	527	42	287
Denmark . . . . .	0	0	29	46	15	13	0	0	13	584
Estonia . . . . .	0	0	0	0	0	0	0	0	0	0
Irish Free State . . . . .	0	0	13	37	0	0	485	1,021	0	1,091
Finland . . . . .	0	0	73	123	0	0	774	1,047	0	1,146
Gr. Brit. and N. Irel. . . . .	273	271	725	968	3,153	3,003	8,257	10,589	3,245	11,674
Greece . . . . .	...	...	...	...	0	2	26	11	2	13
Norway . . . . .	0	...	95	95	2	2	882	880	4	930
Netherlands . . . . .	0	0	71	51	9	7	818	816	7	880
Portugal . . . . .	—	—	31	—	—	—	146	123	—	137
Sweden . . . . .	0	0	0	0	0	0	2	4	0	4
Czechoslovakia . . . . .	0	0	2	0	4	7	18	20	7	22
Ceylon . . . . .	—	—	35	20	—	—	381	362	—	386
China . . . . .	0	57	88	77	57	146	1,407	1,261	165	1,314
Indo-China . . . . .	—	—	35	24	—	—	353	313	—	337
Java and Madura . . . . .	—	—	...	...	—	—	1,010	922	—	1,087
Syria and Lebanon . . . . .	...	...	...	...	53	71	77	765	77	888
Egypt . . . . .	0	0	4	9	0	0	68	93	0	99
Union of South Afr. . . . .	...	...	...	...	2	0	9	9	2	9
New Zealand . . . . .	...	...	...	...	2	2	159	157	2	209
<b>Totals . . . . .</b>	<b>4,203</b>	<b>4,747</b>	<b>1,513</b>	<b>1,813</b>	<b>52,741</b>	<b>54,207</b>	<b>18,649</b>	<b>21,899</b>	<b>58,886</b>	<b>24,017</b>
<b>Barley. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	0	0	0	0	0	522	0	0	522	0
Spain . . . . .	0	0	0	0	0	44	0	0	44	0
Hungary . . . . .	4	7	0	0	93	1,071	24	0	1,093	0
Lithuania . . . . .	11	0	0	0	176	0	0	0	0	0
Poland . . . . .	209	84	0	0	6,903	3,309	0	0	3,538	0
Romania . . . . .	174	710	0	0	4,048	14,180	0	4	14,654	4
Czechoslovakia . . . . .	51	11	0	0	1,109	1,116	2	2	1,116	2
Yugoslavia . . . . .	0	0	0	0	538	163	0	0	176	0
U. S. S. R. . . . .	...	...	...	...	2,939	10,494	—	—	10,796	—
Canada . . . . .	465	64	0	0	6,700	584	0	0	820	0
United States . . . . .	31	46	84	0	1,870	2,458	5,117	15	2,531	165
Argentina . . . . .	719	1,215	—	—	9,191	10,981	—	—	11,640	—
Chile . . . . .	...	...	...	...	1,195	1,254	0	0	2,006	0
India . . . . .	0	...	0	7	392	2	9	93	2	95
Algeria . . . . .	18	9	20	13	1,155	1,111	739	465	1,127	496
Egypt . . . . .	0	0	0	0	0	139	18	0	139	0
French Morocco . . . . .	...	...	...	...	4,881	1,812	0	0	2,628	0
Australia . . . . .	13	44	0	0	1,327	1,276	0	0	1,407	0
<i>Importing Countries:</i>										
Germany . . . . .	0	0	280	736	2	2	10,329	7,106	2	7,648
Austria . . . . .	0	0	79	254	0	0	1,493	2,361	0	2,588
Belgium . . . . .	68	115	344	474	454	604	8,139	8,521	655	8,962
Denmark . . . . .	2	82	57	46	1,398	948	891	1,157	977	1,314
Irish Free State . . . . .	0	0	0	137	4	11	256	212	11	212
France . . . . .	0	0	183	179	2	0	3,713	3,536	0	3,915
Gr. Brit. and N. Irel. . . . .	0	0	1,003	1,089	9	20	13,226	19,310	26	20,322
Greece . . . . .	...	...	...	...	0	0	64	4	0	4
Italy . . . . .	0	...	146	84	0	0	1,757	1,063	0	1,120
Norway . . . . .	0	0	7	7	2	0	159	293	0	293
Netherlands . . . . .	0	0	159	390	194	26	5,512	10,642	26	11,543
Switzerland . . . . .	0	0	126	245	0	0	2,533	2,202	0	2,412
Syria and Lebanon . . . . .	...	...	...	...	112	88	37	209	79	216
Tunisia . . . . .	139	13	2	7	201	79	308	575	84	602
<b>Totals . . . . .</b>	<b>1,904</b>	<b>2,400</b>	<b>2,490</b>	<b>3,668</b>	<b>44,895</b>	<b>52,294</b>	<b>55,026</b>	<b>57,770</b>	<b>56,099</b>	<b>61,913</b>



COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Oats. — Thousand centals (1 cental = 100 lb.)</b>										
<i>Exporting Countries</i>										
Irish Free State . . .	0	0	0	0	0	20	0	0	20	0
Hungary . . . . .	0	2	0	0	0	763	0	0	761	0
Lithuania . . . . .	9	0	0	0	212	2	0	0	2	0
Poland . . . . .	64	75	0	0	937	267	0	0	304	0
Romania . . . . .	9	0	0	0	64	505	0	0	505	0
Czechoslovakia . . .	29	37	0	0	31	741	2	0	741	0
Yugoslavia . . . . .	4	37	0	0	276	82	0	0	112	0
Canada . . . . .	500	225	0	0	4,601	1,779	0	2	2,070	2
United States . . . .	82	—	130	2	117	119	4,815	22	123	71
Argentina . . . . .	650	516	—	—	13,062	6,199	—	—	7,117	—
Chile . . . . .	—	—	—	—	1,047	897	—	—	1,530	—
Tunisia . . . . .	44	15	0	0	410	37	0	22	86	22
Australia . . . . .	4	2	0	0	260	31	2	0	33	2
<i>Importing Countries:</i>										
Germany . . . . .	0	4	187	0	13	1,929	4,619	93	1,931	97
Austria . . . . .	0	0	71	115	0	0	229	333	0	450
Belgium . . . . .	0	0	108	123	0	0	313	273	0	390
Denmark . . . . .	0	0	77	24	657	26	829	346	26	373
Estonia . . . . .	0	0	0	0	15	0	0	0	0	0
Finland . . . . .	0	0	0	44	2	9	11	505	9	549
France . . . . .	0	15	37	4	31	179	370	201	179	238
Gr. Brit. and N. Irel.	0	0	500	249	18	18	2,998	4,667	20	4,894
Italy . . . . .	0	0	198	346	0	0	4,374	2,626	0	2,811
Latvia . . . . .	0	0	0	0	0	0	0	0	0	0
Norway . . . . .	0	0	15	0	0	4	20	2	4	2
Netherlands . . . . .	0	0	170	148	11	20	776	1,098	20	1,142
Sweden . . . . .	0	0	0	46	37	9	24	911	9	915
Switzerland . . . . .	0	0	271	492	0	0	4,083	4,462	0	4,780
Algeria . . . . .	7	0	4	20	128	53	126	276	64	282
<b>Totals . . . . .</b>	<b>1,402</b>	<b>932</b>	<b>1,768</b>	<b>1,613</b>	<b>21,929</b>	<b>13,689</b>	<b>23,591</b>	<b>15,841</b>	<b>15,666</b>	<b>17,022</b>
<b>Maize. — Thousand centals (1 cental = 100 lb.)</b>										
COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Maize. — Thousand centals (1 cental = 100 lb.)</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	0	93	0	0	399	1,812	0	0	2,564	0
Hungary . . . . .	0	13	245	0	130	849	505	0	1,056	0
Romania . . . . .	1,054	196	0	0	7,020	7,580	0	2	10,115	2
Yugoslavia . . . . .	741	756	0	2	9,961	7,652	0	2	11,810	2
United States . . . .	2	115	3,428	44	216	1,579	10,781	110	2,401	763
Argentina . . . . .	15,225	11,409	—	—	82,607	81,999	—	—	127,961	—
Java and Madura . . .	88	2	—	—	1,310	908	—	—	924	—
Indo-China . . . . .	509	494	—	—	5,509	3,680	—	—	8,439	—
Syria and Lebanon . .	—	—	—	—	0	0	7	64	0	66
Egypt . . . . .	0	0	2	2	0	2	20	13	2	20
Union of South Afr.	928	0	—	—	6,592	0	0	421	3,693	432
<i>Importing Countries</i>										
Germany . . . . .	0	0	677	653	0	0	6,614	4,184	0	7,452
Austria . . . . .	0	0	611	1,030	0	2	7,161	7,522	2	10,448
Belgium . . . . .	93	15	1,396	1,570	545	366	9,808	10,335	822	16,824
Denmark . . . . .	0	0	545	134	0	0	2,601	2,264	0	4,586
Spain . . . . .	0	0	13	104	0	0	434	849	0	1,911
Irish Free State . . .	0	0	516	736	0	0	3,746	3,530	0	6,543
Finland . . . . .	0	0	106	71	0	0	364	1,135	0	1,312
France . . . . .	0	0	545	864	7	18	10,419	9,581	22	13,607
Gr. Brit. and N. Irel.	185	275	5,309	5,714	1,415	1,215	39,092	43,436	2,116	66,597
Greece . . . . .	—	—	—	—	—	—	648	29	0	37
Italy . . . . .	0	0	602	858	2	2	1,742	2,147	2	3,874
Norway . . . . .	0	0	302	247	0	0	1,448	1,892	0	3,084
Netherlands . . . . .	0	7	1,537	1,257	0	13	13,007	15,022	13	22,011
Poland . . . . .	0	0	0	0	0	0	0	57	0	60
Portugal . . . . .	—	—	7	194	—	—	437	981	—	1,669
Sweden . . . . .	0	0	60	212	0	0	342	2,802	0	3,106
Switzerland . . . . .	0	0	123	128	0	0	1,107	1,155	0	1,792
Czechoslovakia . . .	0	0	236	456	0	0	1,817	2,983	0	5,150
Canada . . . . .	0	0	214	412	—	2	2,657	2,522	2	4,090
Japan . . . . .	—	—	2	0	—	—	13	2	—	2
Tunisia . . . . .	2	0	0	0	2	0	55	101	4	101
<b>Totals . . . . .</b>	<b>18,827</b>	<b>13,375</b>	<b>16,476</b>	<b>14,686</b>	<b>115,715</b>	<b>107,679</b>	<b>114,825</b>	<b>113,141</b>	<b>171,948</b>	<b>175,941</b>

1) See notes page 649

COUNTRIES	JUNE				SIX MONTHS (January 1-June 30)				TWELVE MONTHS (January 1-Dec 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Rice.</b> — Thousand centals (1 cental = 100 lb)										
<i>Exporting Countries</i>										
Spain	4	29	0	0	375	192	0	0	1 010	0
Italy	134	357	4	4	1 402	1 601	40	18	3 519	44
United States	333	95	11	60	922	549	412	269	917	558
Brazil	—	—	—	—	357	220	—	—	734	—
India	2 500	2 200	165	683	25 743	20 638	1 942	3 336	31 242	8,852
Indo China	3 047	2 844	—	—	25 865	16 744	—	—	28,462	—
Siam	2 092	2 601	—	—	17 721	19 251	—	—	43 202	—
Egypt	86	88	0	0	578	1 078	13	4	1 508	9
<i>Importing Countries</i>										
Germany	40	126	410	527	207	320	2 024	2 544	745	6,341
Austria	0	0	49	46	0	0	326	317	0	633
Belgium	4	11	115	99	20	60	454	677	97	1 446
Denmark	0	0	13	20	0	0	60	66	0	137
Estonia	—	—	2	0	—	—	7	7	—	15
Irish Free State	0	0	11	4	0	0	31	37	2	57
France	46	53	478	1 927	370	425	4 923	7 172	661	14 171
Gr Brit and N Irel	11	18	220	370	99	82	1 618	1 744	174	2,862
Greece	—	—	—	1)	0	1)	240	212	0	313
Hungary	0	0	31	7	0	0	161	176	0	448
Latvia	0	0	2	0	0	0	4	4	0	11
Lithuania	0	0	0	2	0	0	4	7	0	15
Norway	0	0	20	15	0	0	68	60	0	106
Netherlands	179	203	344	406	1 003	853	1 667	1 874	2 013	3 629
Finl	15	9	357	13	53	64	681	348	157	974
Portugal	—	—	60	60	—	—	172	300	—	575
Sweden	—	—	7	104	—	—	165	128	—	223
Switzerland	0	0	29	24	0	0	214	176	0	397
Czechoslovakia	0	0	243	146	0	0	664	503	0	1,497
Yugoslavia	0	0	24	29	0	0	196	190	0	439
Canada	0	0	220	128	2	2	465	522	4	732
Chile	—	—	—	—	—	—	97	108	—	340
Ceylon	0	0	767	1 080	2	2	6 052	5 626	4	10 977
China	0	13	3 567	2 407	55	134	24 663	9 806	150	17 000
Java and Madura	4	7	—	—	7	53	2 445	88	132	1,356
Japan	49	71	0	24	631	1 259	77	64	1 457	152
Syria and Lebanon	—	—	—	1)	0	1)	159	216	0	428
Algeria	0	0	20	49	2	4	99	313	9	355
Tunisia	0	0	0	4	0	0	20	42	0	57
Union of South Afr	—	—	—	1)	0	1)	401	456	0	1,184
Australia	46	26	2	2	130	115	26	33	244	49
New Zealand	—	—	—	2)	0	2)	18	18	0	73
<b>Totals</b>	<b>8,590</b>	<b>8,751</b>	<b>7,171</b>	<b>8,240</b>	<b>75,544</b>	<b>63,646</b>	<b>50,608</b>	<b>37,461</b>	<b>116,443</b>	<b>76,455</b>
<b>Linseed.</b> — Thousand centals (1 cental = 100 lb)										
<i>Exporting Countries</i>										
Lithuania	2	2	0	0	79	49	0	0	141	0
Argentina	2 359	1 583	—	—	22 434	17 223	—	—	30 300	—
India	198	862	0	0	1,219	3 071	0	0	6 175	0
Tunisia	0	0	0	0	0	0	0	2	0	2
<i>Importing Countries</i>										
Germany	0	2	84	615	0	2	2 531	4 619	2	6 986
Belgium	2	2	161	53	82	44	1 334	977	68	1 790
Denmark	—	—	33	44	—	—	313	209	—	359
Spain	—	—	31	22	—	—	194	148	—	366
Estonia	0	0	0	0	2	2	4	4	15	4
Finlnd	0	0	2	13	0	0	44	77	0	104
France	0	0	280	408	2	4	3 005	3 258	7	5 243
Gr Brit and N Irel	0	0	326	238	2	2	2 632	2 527	15	4 123
Greece	—	—	—	1)	0	1)	35	40	0	112
Hungary	0	0	0	0	4	2	0	0	13	0
Italy	0	0	168	179	0	0	829	734	0	1 422
Latvia	0	0	2	4	49	29	46	35	79	86
Norway	0	0	53	15	0	0	331	240	0	337
Netherlands	0	2	728	280	53	49	5 745	3 320	77	7,108
Poland	0	0	0	55	0	0	0	126	0	170
Sweden	—	—	132	108	—	—	527	580	—	849
Czechoslovakia	0	0	40	24	0	0	366	304	0	556
Yugoslavia	0	0	9	7	0	0	126	90	0	139
Canada	0	0	22	42	4	2	256	251	4	443
United States	—	—	974	452	—	—	5 038	4 387	—	7,934
Japan	0	0	84	71	2	2	306	340	2	434
Australia	0	0	123	26	0	0	483	201	0	560
<b>Totals</b>	<b>2,561</b>	<b>2,453</b>	<b>3,252</b>	<b>2,656</b>	<b>23,932</b>	<b>20,481</b>	<b>24,145</b>	<b>22,469</b>	<b>36,898</b>	<b>39,127</b>

1) 2) See notes page 649

COUNTRIES	JUNE				SIX MONTHS (January-I June 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Butter. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Austria . . . . .	853	582	2	2	2,690	2,167	7	148	7,053	157
Denmark . . . . .	31,914	34,110	0	9	154,388	174,197	9	15	330,311	20
Estonia . . . . .	2,515	3,016	0	0	9,286	8,999	0	0	22,306	0
Irish Free State . . . . .	11,920	11,308	4	2	23,792	21,991	11	60	56,886	84
Finland . . . . .	1,852	2,661	0	0	11,945	13,228	0	0	24,463	13
Hungary . . . . .	642	655	0	0	2,359	3,717	0	0	8,790	0
Latvia . . . . .	4,597	4,517	0	0	16,041	15,629	0	0	34,615	0
Lithuania . . . . .	3,064	3,276	0	0	9,319	8,867	0	0	21,321	0
Norway . . . . .	0	2	0	0	247	344	0	2	547	2
Netherlands . . . . .	10,728	11,133	0	99	52,935	45,733	220	284	81,320	1,173
Poland . . . . .	2,377	2,240	0	0	3,012	3,618	2	0	9,782	9
Sweden . . . . .	4,195	5,399	0	0	23,865	25,671	2	2	51,152	4
U. S. S. R. . . . .	—	—	—	—	3) 7,311	3) 6,936	—	—	83,562	—
Argentina . . . . .	121	183	—	—	9,575	8,488	—	—	18,345	—
India . . . . .	11	11	62	64	97	99	379	309	212	642
Syria and Lebanon . . . . .	—	—	—	—	1) 176	1) 57	1) 150	1) 317	293	809
Australia . . . . .	5,624	12,935	0	0	150,382	134,646	2	0	246,784	2
New Zealand . . . . .	14,637	17,571	—	—	156,921	161,282	—	—	292,830	—
<i>Importing Countries:</i>										
Germany . . . . .	2	2	7,736	6,431	7	7	78,086	47,829	9	136,165
Belgium . . . . .	11	11	273	529	33	57	7,588	10,875	108	20,629
Spain . . . . .	2	4	2	44	15	7	64	134	15	143
France . . . . .	1,243	686	104	141	4,458	3,353	646	8,777	7,297	9,603
Gr. Brit. and N. Irel. . . . .	615	597	95,313	112,641	10,997	7,802	565,097	600,687	12,635	1,086,713
Greece . . . . .	—	—	—	—	—	—	1) 293	130	—	690
Italy . . . . .	53	57	106	—	176	198	575	2,804	276	3,801
Switzerland . . . . .	0	0	20	15	2	0	90	604	0	653
Czechoslovakia . . . . .	0	0	220	459	0	22	1,761	1,396	22	2,229
Canada . . . . .	31	51	7	33	205	170	42	2,811	428	2,873
United States . . . . .	392	82	1,437	57	686	814	21,486	344	1,321	1,164
Ceylon . . . . .	—	—	66	75	—	—	483	403	—	681
Java and Madura . . . . .	—	—	—	—	—	—	1) 4,725	5,143	—	10,313
Japan . . . . .	—	—	2	4	—	—	13	33	—	64
Algeria . . . . .	0	0	1,376	388	7	4	3,377	2,242	7	4,791
Egypt . . . . .	9	4	53	66	112	51	524	392	82	789
Tunisia . . . . .	0	0	130	132	11	2	1,133	1,127	22	2,114
<b>Totals</b> . . . . .	<b>97,408</b>	<b>111,093</b>	<b>106,913</b>	<b>121,286</b>	<b>651,050</b>	<b>648,156</b>	<b>686,770</b>	<b>686,868</b>	<b>1,312,794</b>	<b>1,286,330</b>
<b>Cheese. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	170	143	0	0	1,477	485	0	0	2,652	0
Denmark . . . . .	1,296	1,160	0	0	6,691	6,711	18	15	13,891	73
Finland . . . . .	772	911	0	0	4,480	3,558	4	9	8,523	40
Italy . . . . .	4,594	6,034	970	1,226	28,008	28,462	5,135	4,967	55,248	10,214
Lithuania . . . . .	2	282	0	0	448	1,045	2	0	2,200	2
Norway . . . . .	238	487	18	18	1,431	1,960	123	90	4,418	214
Netherlands . . . . .	11,868	12,924	55	46	65,138	65,180	355	428	134,892	1,455
Poland . . . . .	0	53	33	55	500	996	163	320	3,926	531
Switzerland . . . . .	3,364	3,843	212	337	18,770	19,374	1,664	2,564	39,143	5,353
Czechoslovakia . . . . .	192	141	223	304	800	752	1,177	1,321	1,995	2,628
Yugoslavia . . . . .	476	443	4	4	1,168	1,052	29	24	4,045	57
Canada . . . . .	1,735	2,895	75	66	4,154	5,961	509	445	61,167	946
Australia . . . . .	403	196	4	9	8,909	4,482	24	31	12,467	77
New Zealand . . . . .	11,323	16,316	—	—	112,663	126,749	2) 0	2) 0	222,266	2
<i>Importing Countries:</i>										
Germany . . . . .	46	245	4,345	6,907	430	1,080	29,200	36,407	2,114	74,488
Austria . . . . .	335	373	196	198	3,684	1,623	983	1,001	3,860	1,720
Belgium . . . . .	33	75	4,453	3,838	126	231	23,629	21,555	353	47,818
Spain . . . . .	18	15	293	203	66	84	1,279	1,105	123	2,482
Irish Free State . . . . .	33	2	4	4	148	66	35	33	514	64
France . . . . .	1,874	1,757	2,388	3,245	13,151	13,325	17,126	15,801	25,973	35,173
Gr. Brit. and N. Irel. . . . .	474	551	20,117	26,145	2,732	2,789	158,610	173,381	5,968	334,718
Greece . . . . .	—	—	—	—	1) 126	1) 688	1) 686	1) 88	1,144	295
Hungary . . . . .	—	—	0	—	—	—	2	0	176	0
Portugal . . . . .	—	—	29	42	—	—	176	152	—	525
Sweden . . . . .	—	—	86	77	—	—	595	522	—	1,248
United States . . . . .	117	101	3,836	3,898	666	694	23,905	22,992	1,512	47,532
India . . . . .	0	0	62	68	0	2	553	465	4	1,151
Java and Madura . . . . .	—	—	—	—	—	—	1) 703	1) 670	—	1,656
Syria and Lebanon . . . . .	—	—	—	—	1) 214	1) 110	1) 461	1) 505	534	1,221
Algeria . . . . .	7	13	911	324	77	62	5,939	5,730	119	11,288
Egypt . . . . .	4	9	430	494	35	51	3,336	2,754	126	6,537
Tunisia . . . . .	9	11	179	236	29	73	1,380	1,464	86	2,959
<b>Totals</b> . . . . .	<b>39,387</b>	<b>48,987</b>	<b>38,923</b>	<b>47,744</b>	<b>276,216</b>	<b>287,694</b>	<b>277,801</b>	<b>294,839</b>	<b>609,439</b>	<b>592,467</b>

1) 2) 3) See notes page 649.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Cotton. — Thousand cents (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
United States . . . . .	1,938	2,502	33	49	24,954	39,240	503	694	40,971	747
Argentina . . . . .	112	95	—	—	575	348	—	—	450	—
Brazil . . . . .	—	—	—	—	2,932	899	—	—	1,303	—
India . . . . .	1,060	1,437	249	90	11,806	11,517	1,702	858	12,791	974
Egypt . . . . .	450	467	—	—	7,507	8,453	—	—	8,927	—
<i>Importing Countries:</i>										
Germany . . . . .	66	97	593	556	882	1,142	5,741	8,955	1,235	9,539
Austria . . . . .	0	0	53	55	4	2	628	615	2	664
Belgium . . . . .	55	49	181	148	670	516	1,878	1,653	553	1,768
Denmark . . . . .	—	—	15	13	—	—	163	174	—	190
Spain . . . . .	2	0	234	196	49	31	1,991	2,293	33	2,489
Estonia . . . . .	0	0	7	11	0	0	104	84	0	88
Finland . . . . .	0	2	11	18	4	2	265	234	2	249
France . . . . .	37	31	492	346	586	359	4,689	6,832	423	7,101
Gr Brit and N. Irel.	64	46	831	922	657	567	10,485	13,362	606	14,266
Greece . . . . .	—	—	—	—	11	11	0	123	0	163
Hungary . . . . .	0	0	31	42	0	0	448	463	0	509
Italy . . . . .	0	0	192	280	2	9	3,331	4,475	9	4,716
Latvia . . . . .	0	0	11	2	0	0	106	101	0	108
Norway . . . . .	0	0	4	2	0	0	60	51	0	53
Netherlands . . . . .	0	0	49	82	4	7	789	915	7	988
Poland . . . . .	0	0	117	119	9	4	1,296	1,418	4	1,519
Portugal . . . . .	—	—	35	35	—	—	421	463	—	498
Sweden . . . . .	—	—	44	49	—	—	569	615	—	661
Switzerland . . . . .	0	0	40	37	2	0	531	547	0	597
Czechoslovakia . . . . .	4	13	97	128	66	84	1,437	1,717	97	1,845
Yugoslavia . . . . .	0	0	26	20	0	0	287	260	0	289
Canada . . . . .	—	—	75	134	—	—	1,142	1,422	—	1,506
China . . . . .	7	26	198	207	368	745	1,550	2,646	767	2,835
Japan . . . . .	29	99	1,241	2,110	573	348	16,036	15,686	384	17,163
Algeria . . . . .	0	0	0	0	4	2	4	11	2	11
<b>Totals</b>	<b>3,824</b>	<b>4,861</b>	<b>4,859</b>	<b>5,651</b>	<b>51,665</b>	<b>64,275</b>	<b>56,273</b>	<b>66,667</b>	<b>68,566</b>	<b>71,536</b>

**Wool. = (Thousand lb.).**

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wool. = (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Irish Free State . . . . .	893	723	24	42	10,276	14,795	622	516	16,810	697
Hungary . . . . .	0	326	137	198	1,329	1,305	3,093	1,836	6,270	2,286
Argentina . . . . .	28,614	7,339	—	—	246,696	245,536	—	—	260,395	—
Chile . . . . .	3,766	657	—	—	25,933	14,425	—	—	15,922	—
India . . . . .	6,623	2,985	505	256	17,522	25,294	154	0	27,174	4
Syria and Lebanon . . . . .	—	—	—	—	42,977	49,741	6,673	3,843	55,724	4,643
Algeria . . . . .	1,252	1,343	335	467	5,102	3,117	79	306	4,799	324
Egypt . . . . .	463	134	11	0	6,208	7,386	1,964	1,938	9,270	2,350
Un. of S. Africa . . . . .	9,632	8,159	—	—	2,544	2,158	49	51	2,721	57
Australia . . . . .	816	405	—	—	210,738	223,929	57	0	228,426	0
New Zealand . . . . .	45,451	7,039	126	185	7,022	5,825	1,133	1,356	6,228	1,519
— (a) — (b)	5,853	3,948	0	18	775,044	692,360	3,318	6,848	703,392	7,035
— (a) — (b)	5,423	4,123	—	—	60,945	59,214	90	335	65,852	342
— (a) — (b)	5,825	5,124	—	—	152,909	224,445	101	2	228,155	0
— (a) — (b)	—	—	—	—	35,869	39,223	24	9	47,120	15
<i>Importing Countries:</i>										
Germany . . . . .	18	108	30,206	21,846	5,326	1,462	215,948	273,868	2,899	285,918
Austria . . . . .	90	234	4,337	3,069	1,951	5,534	49,022	58,864	5,935	62,340
Belgium . . . . .	10,540	6,360	21,365	8,494	1,019	324	15,571	17,397	688	18,645
Denmark . . . . .	1,960	985	648	366	88,053	88,397	188,544	160,127	96,175	173,077
Finland . . . . .	29	9	344	328	16,918	22,481	3,521	5,095	24,134	5,463
France . . . . .	84	112	2,169	536	311	181	4,076	4,456	225	5,031
Gr Brit. and N. Irel.	3,655	3,245	38,059	29,037	2,280	3,896	9,636	4,919	4,292	5,970
Greece . . . . .	38,548	25,823	54,961	48,350	2,584	4,475	4,826	4,44	5,615	5,615
Italy . . . . .	62	278	8,505	19,877	36,394	45,349	300,753	342,562	51,035	374,946
Norway . . . . .	33	196	1,554	2,626	269,371	323,066	739,362	786,455	356,872	843,540
Netherlands . . . . .	137	196	721	721	478	994	5,135	2,983	1,369	4,612
Poland . . . . .	49	33	692	300	589	1,030	70,434	132,450	1,243	142,633
Sweden . . . . .	0	0	6,177	2,842	1,166	3,454	11,625	19,000	4,085	21,129
Switzerland . . . . .	2	7	2,163	1,497	1,160	1,567	1,931	1,933	1,779	2,332
Czechoslovakia . . . . .	57	240	3,254	2,568	2,778	4,284	5,613	8,170	4,482	9,081
Yugoslavia . . . . .	18	15	639	1,208	1,349	1,281	6,629	5,926	1,398	6,570
Canada . . . . .	20	46	2,235	2,176	97	683	29,793	35,492	745	38,111
United States . . . . .	46	35	15,933	8,003	187	238	18,219	17,031	247	20,130
Japan . . . . .	66	35	21,956	4,178	1,329	1,797	26,495	30,783	2,507	35,285
Tunisia . . . . .	179	249	20	31	990	234	6,241	5,289	320	6,260
<b>Totals</b>	<b>170,297</b>	<b>80,713</b>	<b>221,245</b>	<b>161,329</b>	<b>2,040,942</b>	<b>2,127,777</b>	<b>2,049,965</b>	<b>2,307,885</b>	<b>2,252,696</b>	<b>2,485,534</b>

a) = Wool greasy b) = Wool scoured — 1) 2) See notes page 640.

COUNTRIES	JUNE		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	JUNE		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1- June 30)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Coffee. — (Thousand lb.).</b>						<b>Tea. — (Thousand lb.)</b>					
<b>EXPORTS.</b>						<b>EXPORTS</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil . . . . .	...	...	1,600,109	1,911,912	—	Ceylon . . . . .	21,555	24,862	213,701	210,494	—
India . . . . .	2,319	1,296	16,521	20,893	—	China . . . . .	5,633	14,674	96,477	104,272	—
Java and Madura . .	4,612	6,091	65,500	64,607	—	India . . . . .	14,919	14,028	329,164	316,788	—
<i>Importing Countries:</i>						Java and Madura . .	10,684	9,919	120,847	107,046	—
Germany . . . . .	0	20	66	234	—	Japan . . . . .	1,889	2,368	30,986	31,720	—
Belgium . . . . .	22	22	150	284	—	<i>Importing Countries</i>					
France . . . . .	0	0	9	71	—	Belgium . . . . .	0	2	9	9	—
Gr. Britain and N.	1,475	2,829	18,962	33,215	—	Irish Free State . .	0	128	256	159	—
Ireland . . . . .	882	1,922	11,524	18,468	—	France . . . . .	0	0	26	40	—
Netherlands . . . .	214	723	2,712	3,311	—	Gr. Brit. and N. Irel.	6,815	5,227	68,831	78,736	—
Switzerland . . . .	0	42	553	351	—	Netherlands . . . .	18	15	132	146	—
Canada . . . . .	18	4	115	57	—	United States . . . .	44	584	765	1,706	—
United States . . . .	1,545	666	16,449	25,212	—	Syria and Lebanon . .	...	...	9 <sup>1)</sup>	0	—
Ceylon . . . . .	0	0	4	7	—	Algeria . . . . .	...	...	9 <sup>1)</sup>	57	—
Syria and Lebanon . .	...	...	0 <sup>1)</sup>	2	—	Union of S. Africa . .	...	...	29 <sup>1)</sup>	18	—
Australia . . . . .	24	4	73	40	—	Australia . . . . .	57	51	805	928	—
Totals . . . . .	—	—	—	—	—	New Zealand . . . . .	...	...	90 <sup>1)</sup>	84	—
<b>IMPORTS</b>						Totals . . . . .	61,614	71,860	862,220	852,203	—
<i>Importing Countries</i>						<b>IMPORTS</b>					
Germany . . . . .	24,855	29,699	327,491	307,398	—	<i>Importing Countries</i>					
Austria . . . . .	886	736	12,291	11,244	—	Germany . . . . .	774	714	10,216	10,415	—
Belgium . . . . .	7,882	8,135	103,750	109,702	—	Austria . . . . .	42	49	856	728	—
Bulgaria . . . . .	86	112	1,060	1,074	—	Belgium . . . . .	49	49	613	534	—
Denmark . . . . .	3,785	4,103	58,260	57,814	—	Denmark . . . . .	88	77	1,230	1,230	—
Spain . . . . .	3,794	4,943	52,117	61,494	—	Spain . . . . .	55	29	273	328	—
Estonia . . . . .	15	11	163	152	—	Estonia . . . . .	4	2	77	66	—
Irish Free State . . .	26	73	520	545	—	Irish Free State . . .	1,422	794	22,818	23,464	—
Finland . . . . .	3,243	3,349	39,143	37,040	—	Finland . . . . .	18	20	247	251	—
France . . . . .	40,153	33,374	392,272	409,228	—	France . . . . .	183	34	2,189	3,968	—
Gr. Britain and N.	1,755	2,447	57,574	77,418	—	Gr. Britain and N.	29,374	33,634	507,905	470,574	—
Ireland . . . . .	...	...	11,495 <sup>1)</sup>	11,658	—	Ireland . . . . .	...	...	417 <sup>1)</sup>	368	—
Greece . . . . .	112	467	5,534	4,314	—	Greece . . . . .	2	18	611	381	—
Hungary . . . . .	7,178	7,796	86,975	86,882	—	Hungary . . . . .	22	33	342	280	—
Italy . . . . .	15	4	143	271	—	Italy . . . . .	4	0	84	51	—
Latvia . . . . .	29	29	419	359	—	Latvia . . . . .	2	7	77	84	—
Lithuania . . . . .	3,516	2,377	35,894	37,366	—	Lithuania . . . . .	26	37	337	381	—
Norway . . . . .	5,897	8,733	62,949	137,459	—	Norway . . . . .	2,368	1,545	30,012	25,942	—
Netherlands . . . . .	1,129	1,281	15,668	16,852	—	Poland . . . . .	269	260	3,814	3,715	—
Poland . . . . .	1,431	690	15,847	12,485	—	Portugal . . . . .	31	31	399	478	—
Portugal . . . . .	9,502	7,809	97,506	96,759	—	Sweden . . . . .	86	62	944	884	—
Switzerland . . . . .	4,484	1,847	32,476	32,058	—	Switzerland . . . . .	108	97	1,609	1,576	—
Czechoslovakia . . .	2,218	1,499	23,810	23,177	—	Czechoslovakia . . .	64	44	1,056	902	—
Yugoslavia . . . . .	1,071	1,001	13,768	13,823	—	Yugoslavia . . . . .	13	31	439	388	—
Canada . . . . .	3,530	2,791	31,800	36,110	—	Canada . . . . .	2,612	858	30,287	41,246	—
United States . . . .	128,373	97,090	1,551,815	1,598,178	—	United States . . . .	5,498	5,419	83,571	87,691	—
Chile . . . . .	...	...	4,974 <sup>1)</sup>	4,189	—	Chile . . . . .	...	...	4,687 <sup>1)</sup>	2,103	—
Ceylon . . . . .	247	298	3,272	3,150	—	Syria and Lebanon . .	...	...	470 <sup>1)</sup>	271	—
Japan . . . . .	639	511	7,017	6,124	—	Algeria . . . . .	234	101	2,899	3,863	—
Syria and Lebanon . .	...	...	2,048 <sup>1)</sup>	2,282	—	Egypt . . . . .	1,261	96	15,966	15,166	—
Algeria . . . . .	2,851	2,687	31,207	29,518	—	Tunisia . . . . .	306	42	3,417	1,781	—
Egypt . . . . .	1,246	908	15,756	17,604	—	Union of S. Africa . .	...	...	12,154 <sup>1)</sup>	10,858	—
Tunisia . . . . .	295	238	3,382	3,344	—	Australia . . . . .	4,550	3,743	46,873	46,260	—
Un. of S. Africa . . .	...	...	24,255 <sup>1)</sup>	26,546	—	New Zealand . . . . .	...	...	7,518 <sup>1)</sup>	9,672	—
Australia . . . . .	417	311	3,569	5,057	—	<i>Exporting Countries:</i>					
New Zealand . . . . .	...	...	245 <sup>1)</sup>	368	—	China . . . . .	33	53	602	677	—
<i>Exporting Countries:</i>						India . . . . .	139	108	3,148	4,482	—
India . . . . .	0	0	0	0	—	Java and Madura . . .	...	...	1,559 <sup>1)</sup>	1,836	—
Totals . . . . .	260,660	225,349	3,126,465	3,279,042	—	Totals . . . . .	49,617	48,887	799,716	772,894	—

1) 2) See notes page 649.

COUNTRIES	JUNE		NINE MONTHS (Oct. 1-JUNE 30)		TWELVE MONTHS (Oct. 1-Sept. 30)
	1935	1934	1934-35	1933-34	1933-34
Cacao. — (Thousand lb.).					
EXPORTS.					
Exporting Countries:					
Grenada . . . . .	...	...	1) 7,308	1) 8,199	9,612
Dominican Republ. . . . .	...	...	1) 36,304	1) 33,678	49,818
Brazil . . . . .	...	...	1) 141,850	1) 102,346	211,530
Ecuador . . . . .	...	...	2) 12,994	2) 17,498	37,084
Trinidad . . . . .	...	...	2) 28,700	2) 19,729	29,057
Venezuela . . . . .	...	...	4) 7,474	4) 7,972	25,223
Ceylon . . . . .	606	328	5,867	7,932	8,841
Java and Madura . . . . .	168	79	1,980	2,249	4,195
French Cameroon . . . . .	...	...	1) 42,031	1) 37,014	41,291
Ivory Coast . . . . .	...	...	1) 77,837	1) 59,576	77,762
Gold Coast . . . . .	21,416	17,269	468,848	444,897	494,792
Nigeria and British Cameroon . . . . .	...	...	1) 153,149	1) 135,373	159,165
Saint Thomas and Prince Is. . . . .	...	...	1) 17,996	1) 12,919	16,612
French Togoland . . . . .	...	...	1) 13,744	1) 11,363	12,932
Importing Countries:					
Germany . . . . .	0	0	88	205	205
Belgium . . . . .	0	0	176	9	18
France . . . . .	0	0	2	0	0
Gr. Brit. and N. Irel. . . . .	741	1,016	11,729	8,505	13,492
Netherlands . . . . .	359	575	3,422	4,991	7,368
United States . . . . .	730	721	7,143	8,195	10,823
Australia . . . . .	0	13	392	287	322
Totals . . . . .	24,020	20,001	1,039,034	922,937	1,210,142
IMPORTS.					
Importing Countries:					
Germany . . . . .	10,335	21,652	130,682	156,299	218,563
Austria . . . . .	966	1,058	10,046	7,751	10,282
Belgium . . . . .	1,268	800	14,200	20,944	24,954
Bulgaria . . . . .	22	84	639	591	798
Denmark . . . . .	1,325	933	6,759	6,938	8,468
Spain . . . . .	2,443	2,879	18,801	21,244	24,963
Estonia . . . . .	22	46	529	556	644
Irish Free State . . . . .	75	315	2,568	3,931	4,449
Finland . . . . .	13	13	187	115	157
France . . . . .	7,582	7,026	69,342	75,114	94,376
Gr. Brit. and N. Irel. . . . .	8,702	4,120	179,990	170,136	176,467
Greece . . . . .	...	...	2) 2,061	2) 2,081	2,868
Hungary . . . . .	633	430	6,563	5,040	6,477
Italy . . . . .	1,087	1,865	20,876	15,642	18,470
Latvia . . . . .	66	11	957	1,404	1,594
Lithuania . . . . .	46	29	582	474	545
Norway . . . . .	1,122	335	5,688	4,176	5,564
Netherlands . . . . .	8,968	6,367	107,432	106,885	124,522
Poland . . . . .	1,314	1,347	12,782	10,957	14,253
Portugal . . . . .	90	82	882	911	1,107
Sweden . . . . .	694	703	9,608	8,168	9,749
Switzerland . . . . .	1,631	1,307	12,571	15,033	16,455
Czechoslovakia . . . . .	1,724	1,202	17,738	18,731	23,488
Yugoslavia . . . . .	71	108	1,237	1,281	1,537
Canada . . . . .	2,295	1,649	20,827	18,757	22,377
United States . . . . .	27,624	24,288	448,715	322,167	412,610
Japan . . . . .	29	130	2,756	1,830	2,337
Australia . . . . .	600	699	11,497	13,001	16,239
New Zealand . . . . .	...	...	2) 2,818	2) 1,962	2,487
Totals . . . . .	80,747	79,478	1,119,333	1,012,119	1,246,800

COUNTRIES	JUNE		ELEVEN MONTHS (Aug. 1-JUNE 30)		TWELVE MONTHS (August 1-July 31)
	1935	1934	1934-35	1933-34	1933-34
Total Wheat and Flour *)					
(Thousand cents).					
a) NET EXPORTS.					
Exporting Countries:					
Germany . . . . .	4) 1	4) 1	4) 1	3,472	2,716
Bulgaria . . . . .	0	4	220	2,121	2,366
Spain . . . . .	0	0	0	42	42
Estonia . . . . .	26	0	119	0	0
France . . . . .	2,621	4) 1	10,886	4) 1	4) 1
Hungary . . . . .	527	866	7,355	17,342	17,452
Latvia . . . . .	148	0	293	0	0
Lithuania . . . . .	7	0	580	29	29
Romania . . . . .	348	403	1,442	401	1,466
Sweden . . . . .	963	0	2,055	139	139
Yugoslavia . . . . .	223	4) 1	661	4) 1	4) 1
U. S. S. R. . . . .	51	123	2,531	496	626
Canada . . . . .	4,976	12,159	92,015	19,502	20,761
United States . . . . .	4) 1	271	4) 1	14,308	15,126
Argentina . . . . .	7,339	9,808	101,082	77,854	87,987
Chile . . . . .	...	...	1) 249	4) 1	4) 1
India . . . . .	11	37	494	269	223
Japan . . . . .	35	4) 1	4) 1	4) 1	4) 1
Syria and Lebanon . . . . .	...	...	1) 176	4) 1	4) 1
Algeria . . . . .	439	304	7,326	6,543	7,141
French Morocco . . . . .	...	...	3) 2,460	3) 3,490	5,135
Tunisia . . . . .	279	220	2,158	4) 1	4) 1
Australia . . . . .	3,331	4,650	59,633	46,099	50,651
Totals . . . . .	21,460	28,845	292,623	299,279	327,832
b) NET IMPORTS.					
Importing Countries:					
Germany . . . . .	183	456	6,080	5) 1	5) 1
Austria . . . . .	705	732	5,124	5,650	6,188
Belgium . . . . .	1,684	1,892	21,892	23,823	25,093
Denmark . . . . .	509	395	10,655	6,563	7,516
Irish Free State . . . . .	725	928	9,295	10,706	11,735
Finland . . . . .	273	260	2,220	2,366	2,626
France . . . . .	5) 1	569	5) 1	9,561	10,304
Gr. Brit. and N. Irel. . . . .	10,313	10,428	109,762	119,127	130,547
Greece . . . . .	...	...	1) 6,570	1) 5,584	6,303
Italy . . . . .	2,313	344	6,268	5,016	5,194
Norway . . . . .	608	560	4,815	4,619	4,996
Netherlands . . . . .	359	1,157	10,640	12,637	13,510
Portugal . . . . .	42	31	357	507	567
Sweden . . . . .	5) 1	53	5) 1	1,021	721
Switzerland . . . . .	6) 1,270	6) 1,032	6) 9,590	6) 9,639	10,551
Czechoslovakia . . . . .	71	0	948	99	104
Total Europe . . . . .	19,055	18,837	204,216	216,920	235,955
United States . . . . .					
Chile . . . . .	214	5) 1	3,686	5) 1	5) 1
Ceylon . . . . .	...	...	52	489	518
China . . . . .	1,715	562	11,991	12,533	12,549
Indo-China . . . . .	46	33	470	417	450
Japan . . . . .	5) 1	117	1,142	2,255	2,414
Java and Madura . . . . .	...	...	1) 1,347	1,228	1,420
Syria and Lebanon . . . . .	...	...	5) 1	701	858
Egypt . . . . .	7	11	1,296	121	130
Tunisia . . . . .	5) 1	5) 1	5) 1	379	33
Union of S. Africa . . . . .	...	...	1) 534	1) 40	42
New Zealand . . . . .	...	...	2) 223	2) 108	214
Totals . . . . .	21,094	19,586	225,447	235,729	254,810

\* ) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1.333,333 centals of grain.

a) Excess of exports over imports — b) Excess of imports over exports

Exports. — 6) Wheat only.

## STOCKS OF CEREALS

## Total stocks of home-grown cereals and linseed in Canada.

PRODUCTS	Last day of month				
	July 1935	March 1935	July 1934	July 1933	July 1932
	1,000 centals				
Wheat . . . . .	121,939	169,605	115,994	127,044	79,107
Rye . . . . .	1,758	2,577	2,238	3,256	3,035
Barley . . . . .	2,675	10,926	5,323	5,442	3,454
Oats . . . . .	8,991	38,483	10,550	14,295	10,149
Linseed . . . . .	175	325	264	661	740

## Stocks of cereals and linseed in farmers' hands in Canada.

PRODUCTS	Last day of month					Last day of month				
	July 1935	March 1935	July 1934	July 1933	July 1932	July 1935	March 1935	July 1934	July 1933	July 1932
	% Stocks total production					1,000 centals				
Wheat . . . . .	3	22	3	3	2	4,717	36,276	5,240	7,404	4,498
Rye . . . . .	1	14	1	2	3	44	418	21	88	82
Barley . . . . .	3	20	2	4	5	971	6,243	883	1,489	1,669
Oats 1) . . . . .	6	30	5	7	7	6,824	33,173	6,573	9,418	7,760
Linseed . . . . .	0.4	18	0.2	1	0.3	2	93	2	10	4

## Total stocks of wheat in different locations in Canada.

LOCATION 1)	Last day of month				
	July 1935	March 1935	July 1934	July 1933	July 1932
	1,000 centals				
On farms . . . . .	4,717	36,276	5,240	7,404	4,498
In country and interior terminal elevators, western division . . . . .	29,006	59,323	39,091	44,310	16,561
In terminal elevators Lake Superior 2) . . . . .	42,870	38,292	35,633	36,817	29,210
In elevators Pacific Coast 3) . . . . .	5,327	7,365	5,750	5,613	5,823
In elevators Hudson Bay 4) . . . . .	1,433	1,433	1,486	1,458	1,375
In eastern elevators . . . . .	25,659	18,602	18,953	20,503	10,704
In flour mills . . . . .	5,162	5,254	5,206	5,524	5,342
In transit . . . . .	7,765	3,060	4,635	5,415	5,594
<i>Total Canadian wheat as grain . . .</i>	<i>121,939</i>	<i>169,605</i>	<i>115,994</i>	<i>127,044</i>	<i>79,107</i>
U. S. grain in store in Canada . . . . .	0	629	0	2,244	9,218
<b>TOTAL WHEAT AS GRAIN IN CANADA.</b>	<b>121,939</b>	<b>170,234</b>	<b>115,994</b>	<b>129,288</b>	<b>88,325</b>

1) Quantities afloat for unloading at Canadian ports are included in stocks in terminal elevators Lake Superior or in eastern elevators. — 2) Fort William and Port Arthur. — 3) Vancouver, New Westminster, Victoria, Prince Rupert. — 4) Port Churchill.

**Total stocks of wheat in the United States 1).**

LOCATION	First day of month				
	July 1935	April 1935	January 1935	July 1934	July 1933
	1,000 cents				
On farms . . . . .	25,156	56,219	81,626	36,194	49,385
In interior mills and elevators. . . . .	18,878	41,352	56,091	28,890	38,578
Commercial wheat in store . . . . .	13,171	31,129	54,562	48,329	74,227
In merchant mills and attached elevators 2) . . . . .	27,511	38,866	57,756	45,393	58,166
In transit to merchant mills and bought to arrive 2) . . . . .	4,285	4,897	7,447	8,440	9,623
Stored for others by merchant mills 2) . . . . .	2,172	3,965	6,079	4,475	6,065
<i>Total U. S. wheat as grain . . . . .</i>	<i>91,173</i>	<i>176,428</i>	<i>263,561</i>	<i>171,721</i>	<i>236,044</i>
Flour (in terms of grain) in merchant mills 2). . . . .	11,035	10,392	11,684	11,920	8,838
<i>Total U. S. wheat . . . . .</i>	<i>102,208</i>	<i>186,820</i>	<i>275,245</i>	<i>183,641</i>	<i>244,882</i>
Canadian wheat in store in bond in the U. S. . . . .	5,567	9,793	16,538	6,073	2,602
Wheat of other origin in store in bond in the U. S. . . . .	867	209	17	0	0
<b>TOTAL WHEAT IN THE U. S. . . . .</b>	<b>108,642</b>	<b>196,822</b>	<b>291,800</b>	<b>189,714</b>	<b>247,484</b>

1) Incomplete data: wheat in transit on rail or water with other destination than to merchant mills and attached elevators and wheat flour in other positions than in these same mills, etc., are not included. -- 2) The figures of the Bureau of Census, partial quarterly census are raised to represent totals.

**Wheat and wheat-flour stocks held by commercial mills in the United States 1)**

LOCATION	Last day of month				
	June 1935	March 1935	December 1934	June 1934	June 1933
	1,000 cents				
Wheat stocks the property of commercial millers:					
Wheat in transit to merchant mills and bought to arrive . . . . .	3,985	4,760	6,933	7,815	9,046
Wheat held by mills and mill elevators attached to mills . . . . .	25,585	37,778	53,771	42,034	54,676
Wheat in other positions 2) . . . . .	5,650	9,850	20,257	11,932	15,391
<i>Total . . . . .</i>	<i>35,220</i>	<i>52,388</i>	<i>80,961</i>	<i>61,781</i>	<i>79,113</i>
Wheat-flour in mills and warehouses, and in transit, sold and unsold . . . . .	7,132	7,021	7,560	7,671	5,866
Wheat stored for others in mills and mill elevators. . . . .	2,020	3,854	5,660	4,144	5,701
<b>GRAND TOTAL 3) . . . . .</b>	<b>47,502</b>	<b>66,344</b>	<b>97,499</b>	<b>76,963</b>	<b>93,254</b>

1) Partial census, including mills accounting for over 90 % of the total capacity of all commercial mills — 2) These stocks are included in the total quantities in country elevators or in the total quantities in public terminal elevators and private terminal elevators not attached to mills. — 3) Including flour in terms of grain.



## Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
1,000 centals					
<b>WHEAT:</b>					
Canadian in Canada . . . . .	112,073	113,419	115,650	106,573	117,964
U. S. in Canada . . . . .	0	0	120	0	2,244
U. S. in the United States . . . . .	20,843	13,171	18,465	69,553	80,968
Canadian in the United States . . . . .	6,304	5,567	5,622	5,836	4,018
Of other origin in the United States . . . . .	469	867	869	0	0
Total . . . . .	139,689	133,024	140,726	181,962	205,194
<b>RYE:</b>					
Canadian in Canada . . . . .	1,636	1,819	2,049	2,131	3,125
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	3,868	4,794	5,151	6,747	6,313
Canadian in the United States . . . . .	16	112	0	30	108
Of other origin in the United States . . . . .	1,777	1,917	1,066	326	0
Total . . . . .	7,297	8,642	8,266	9,234	9,546
<b>BARLEY:</b>					
Canadian in Canada . . . . .	1,632	2,439	3,046	4,344	3,712
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	2,512	2,929	3,888	4,774	7,002
Canadian in the United States . . . . .	220	117	126	0	0
Of other origin in the United States . . . . .	172	264	264	0	0
Total . . . . .	4,536	5,749	7,324	9,118	10,714
<b>OATS:</b>					
Canadian in Canada . . . . .	2,051	1,981	2,404	3,535	4,166
U. S. in Canada . . . . .	0	0	0	82	225
U. S. in the United States . . . . .	2,408	2,828	3,521	7,274	11,388
Canadian in the United States . . . . .	0	0	0	0	0
Of other origin in the United States . . . . .	0	19	326	0	0
Total . . . . .	4,459	4,828	6,251	10,891	15,779
<b>MAIZE:</b>					
U. S. in Canada . . . . .	233	749	1,220	1,692	3,985
Of other origin in Canada . . . . .	1,401	1,197	1,453	245	466
U. S. in the United States . . . . .	3,149	4,195	5,960	25,482	35,433
Of other origin in the United States . . . . .	873	571	677	0	0
Total . . . . .	5,656	6,712	9,310	27,419	39,884

## Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
1,000 centals					
Wheat (and flour in terms of grain) . . . . .	10,142	17,467	21,734	20,861	18,970
Rye . . . . .	254	1,334	418	336	706
Barley . . . . .	1,420	1,980	776	1,752	2,112
Oats . . . . .	358	650	851	1,222	534
Maize . . . . .	14,549	6,298	13,478	15,998	13,474

AUTHORITY: Broomhall's Corn Trade News.

### Stocks belonging to farmers in Germany.

PRODUCTS	% stocks: total production					Stocks in 1,000 centals				
	31 July 1935	30 June 1935	31 May 1935	31 July 1934	31 July 1933	31 July 1935	30 June 1935	31 May 1935	31 July 1934	31 July 1933
Winter wheat . . .	1	3	6	2	—	900	2,600	5,200	2,200	—
Spring wheat . . .	1	2	7	1	—	100	300	900	200	—
Winter rye . . .	2	6	9	2	—	3,400	10,000	14,900	3,800	—
Winter barley . . .	1	2	3	1	—	200	300	500	200	—
Spring barley . . .	2	4	7	1	—	1,100	2,200	3,900	600	—
Oats . . .	7	11	15	7	—	8,400	13,200	18,000	10,700	—
Late potatoes . . .	2	4	10	0.6	—	18,400	36,800	92,000	5,400	—

AUTHORITY: *Marktberichtstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A.).

### Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
WHEAT:					
Grain . . . . .	23,263	28,268	33,367	25,779	7,789
Flour for bread . . . . .	2,835	3,078	3,128	2,471	2,632
TOTAL 1) . . . . .	27,200	32,541	37,712	29,217	11,444
RYE					
Grain . . . . .	21,297	23,563	27,571	15,878	6,982
Flour for bread . . . . .	1,495	1,647	1,523	1,288	917
TOTAL 1) . . . . .	23,495	25,985	29,811	17,772	8,331
BARLEY . . . . .	2,890	1,667	1,914	1,938	2,180
OATS . . . . .	2,231	2,743	2,670	522	708

1) Including flour in terms of grain, on the basis of the coefficient. 1,000 centals of wheat flour = 1,358.89 centals of wheat; 1,000 centals of rye flour = 1,470.59 centals of rye.

### Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
	1,000 centals				
WHEAT:					
Grain . . . . .	4,656	5,616	5,664	7,248	5,856
Flour as grain . . . . .	624	648	528	888	792
TOTAL . . . . .	5,280	6,264	6,192	8,136	6,648
BARLEY . . . . .	580	560	480	920	560
OATS . . . . .	464	336	288	298	560
MAIZE . . . . .	2,016	2,160	1,680	2,496	2,760

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News*.

## Stocks of wheat in Italy.

LOCATION	Last day of month				
	May 1935	April 1935	March 1935	February 1935	January 1935
	1,000 centals				
Wheat destined for sale by holding pools ("ammassi collettivi"):					
in collective granaries 1) . . . . .	9	179	983	4,112	6,508
in granaries of producers or other persons . . . . .	2	9	99	507	1,003
Total . . .	11	188	1,082	4,619	7,511
Wheat in general stores and in free zones 2)	2 414	3,170	3,931	5,293	6,268
Wheat in bond in the chief entrepot centres	1,709	1,422	886	888	710
Wheat in mills and attached elevators 3) .	3,014	5,661	6,647	7,425	8,900
GRAND TOTAL . . .	7,148	10,441	12,546	18,225	23,389

1) Including a small quantity of wheat belonging to holding pools which is stored in general stores. — 2) Not including quantities belonging to holding pools; see previous note. — 3) Provisional figures referring to mills which have a daily capacity of not less than 40 metric quintals.

## Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	August 1935	July 1935	June 1935	August 1934	August 1933
	1,000 centals				
WHEAT:					
Antwerp . . . . .	449	915	1,219	1,107	1,201
Rotterdam . . . . .	238	354	505	1,066	1,927
Amsterdam . . . . .	0	15	16	29	15
RYE					
Antwerp . . . . .	61	158	155	1	4
Rotterdam . . . . .	143	226	254	198	132
Amsterdam . . . . .	0	2	2	2	5
BARLEY:					
Antwerp . . . . .	250	354	337	75	52
Rotterdam . . . . .	9	7	77	77	51
Amsterdam . . . . .	13	1	11	28	10
OATS:					
Antwerp . . . . .	71	31	41	44	25
Rotterdam . . . . .	44	17	0	46	39
Amsterdam . . . . .	22	28	21	27	22
MAIZE:					
Antwerp . . . . .	36	31	92	44	291
Rotterdam . . . . .	159	121	55	7	287
Amsterdam . . . . .	26	27	20	3	35

1) Imported cereals. See note on p. 306 of the *Crop Report* of April 1934. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

## STOCKS OF COTTON

### Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	July 1935	June 1935	May 1935	July 1934	July 1933
	1,000 centals				
In consuming establishments . . . . .	3,885	4,348	4,821	6,057	6,607
In public storage and at compresses . . . .	28,294	29,966	32,343	27,435	28,088
<b>TOTAL . . .</b>	<b>32,179</b>	<b>34,314</b>	<b>37,164</b>	<b>33,492</b>	<b>34,695</b>

### Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
	1,000 centals				
Bombay 1) . . . . .	2,404	2,676	3,112	3,788	3,272
Alexandria 2) . . . . .	541	917	1,481	1,370	2,100

1) Stocks held by exporters, dealers and mills. — 2) From February 1934 quantities consumed in Alexandria and those returned to the interior of the country are not included; prior to that date quantities returned to the interior are included.  
**AUTHORITIES.** *East Indian Cotton Ass. and Commission de la Bourse de Mynet-el-Bassal.*

### Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
	1,000 centals				
<b>Great Britain:</b>					
American . . . . .	847	1,074	1,131	1,714	2,123
Argentine, Brazilian, etc. . . . .	221	235	357	626	158
Peruvian, etc. . . . .	309	301	354	354	243
East Indian, etc. . . . .	213	257	252	372	205
Egyptian, Sudanese . . . . .	982	1,050	1,141	1,465	989
W. Indian, W. and E. African, Australian	156	198	179	278	340
<b>TOTAL . . .</b>	<b>2,728</b>	<b>3,115</b>	<b>3,414</b>	<b>4,809</b>	<b>4,038</b>
<b>Bremen:</b>					
American . . . . .	566	604	762	1,771	2,165
Other . . . . .	304	275	261	225	90
<b>TOTAL . . .</b>	<b>870</b>	<b>879</b>	<b>1,023</b>	<b>1,996</b>	<b>2,255</b>
<b>Le Havre:</b>					
American . . . . .	321	364	498	705	869
French colonies . . . . .	14	13	9	47	14
Other . . . . .	89	71	84	83	35
<b>TOTAL . . .</b>	<b>424</b>	<b>448</b>	<b>591</b>	<b>835</b>	<b>918</b>
<b>Total Continent 1):</b>					
American . . . . .	1,293	1,437	1,809	2,964	3,871
Argentine, Brazilian, etc. . . . .	214	166	130	107	44
E. Indian, Australian, etc. . . . .	237	248	247	218	127
Egyptian . . . . .	203	217	252	95	97
W. Indian, W. African, E. African, etc. .	129	112	107	210	79
<b>TOTAL . . .</b>	<b>2,076</b>	<b>2,180</b>	<b>2,545</b>	<b>3,594</b>	<b>4,218</b>

1) Includes Bremen, Le Havre, and other Continental ports.

**AUTHORITIES:** *Liverpool Cotton Ass. and (for Le Havre) Bulletin de correspondance de la Bourse du Havre.*

## WEEKLY PRICES BY PRODUCTS

(All quotations are, unless otherwise stated, spot. The monthly averages are based on the weekly quotations, and the annual on the monthly.)

DESCRIPTION	16	9	2	26	19	AVERAGE			Commercial Season 1)	
	August	August	August	July	July	July	August	August		
	1935	1935	1935	1935	1935	1935	1934	1933	1934-35	1933-34
Wheat.										
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal)										
Braila: Good quality (lei p. quintal)	<sup>11)</sup> 400	<sup>11)</sup> 400	<sup>11)</sup> 400	<sup>11)</sup> 320	<sup>11)</sup> 340	<sup>11)</sup> 337	<sup>11)</sup> 457	<sup>11)</sup> 352	<sup>*</sup> 420	<sup>*</sup> 375
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	85 <sup>3</sup> / <sub>8</sub>	84 <sup>3</sup> / <sub>8</sub>	84 <sup>1</sup> / <sub>8</sub>	83 <sup>3</sup> / <sub>8</sub>	80 <sup>3</sup> / <sub>8</sub>	81 <sup>3</sup> / <sub>8</sub>	85 <sup>3</sup> / <sub>8</sub>	73 <sup>3</sup> / <sub>8</sub>	81 <sup>7</sup> / <sub>8</sub>	67 <sup>3</sup> / <sub>8</sub>
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	<sup>11)</sup> 102 <sup>1</sup> / <sub>8</sub>	<sup>11)</sup> n. 101 <sup>1</sup> / <sub>8</sub>	<sup>11)</sup> 104 <sup>1</sup> / <sub>8</sub>	<sup>11)</sup> 98 <sup>1</sup> / <sub>8</sub>	<sup>11)</sup> 93 <sup>1</sup> / <sub>8</sub>	94 <sup>1</sup> / <sub>8</sub>	109 <sup>1</sup> / <sub>8</sub>	91 <sup>1</sup> / <sub>8</sub>	104 <sup>1</sup> / <sub>8</sub>	89 <sup>1</sup> / <sub>8</sub>
Minneapolis: No. 1 Northern (cents p. 60 lb.) 2)	126 <sup>1</sup> / <sub>8</sub>	128 <sup>1</sup> / <sub>8</sub>	122 <sup>1</sup> / <sub>8</sub>	115 <sup>1</sup> / <sub>8</sub>	114 <sup>1</sup> / <sub>8</sub>	108 <sup>1</sup> / <sub>8</sub>	116 <sup>1</sup> / <sub>8</sub>	91 <sup>1</sup> / <sub>8</sub>	110 <sup>1</sup> / <sub>8</sub>	89 <sup>1</sup> / <sub>8</sub>
New York: No. 2 Hard Winter (cents p. 60 lb.)	113 <sup>1</sup> / <sub>8</sub>	114 <sup>1</sup> / <sub>8</sub>	114	112 <sup>1</sup> / <sub>8</sub>	104	104 <sup>1</sup> / <sub>8</sub>	114	101 <sup>1</sup> / <sub>8</sub>	113 <sup>1</sup> / <sub>8</sub>	98 <sup>1</sup> / <sub>8</sub>
Buenos Aires (a): Barilletta, 80 kg. p. hectol (paper pesos p. quintal)	7.25	7.15	7.30	7.20	6.85	6.79	7.96	6.37	6.86	5.85
Karachi: Karachi white, 2% barley 1 1/2 % dirt (rupees p. 656 lb.)	21-14-0	22-13-0	22-14-0	22-12-0	22-6-0	22-6-3	22-6-7	24-10-9	22-5-9	22-2-4
Berlin: Home grown (free at Brandenburg stations; Km p quintal) 3)	<sup>11)</sup> 19.40	20.80	20.80	20.80	20.80	20.80	<sup>11)</sup> 19.50	<sup>11)</sup> 17.42	20.29	18.65
Hamburg (c. i. f.; Rm. p. quintal):										
No. 2 Manitoba 4)	9.03	n. q.	9.18	8.70	8.53	8.59	9.52	9.39	8.95	7.94
Barusso 5)	6.93	6.92	6.82	6.61	6.33	6.38	7.68	7.87	6.50	6.22
Antwerp (francs p. quintal):										
Home-grown	76.00	80.00	80.00	79.00	80.00	80.35	70.90	<sup>*</sup> 81.50	69.10	63.00
No. 1 Manitoba (Atlantic) (in bond)	108.00	106.00	104.00	101.00	100.00	100.35	82.90	81.60	86.10	67.65
Barusso (in bond)	86.50	85.00	81.00	76.00	75.00	75.10	60.65	68.50	60.90	53.00
Paris: Home-grown (delivery regional depots; 76 kg. p. hl.; frs. p quintal) 6)	<sup>11)</sup> 68.00	<sup>11)</sup> 67.00	<sup>11)</sup> 66.00	<sup>11)</sup> 69.00	<sup>11)</sup> 72.00	73.25	<sup>11)</sup> 111.00	<sup>11)</sup> 119.00	91.50	125.65
London: Home grown (sh. p. 504 lb.) 7)	<sup>11)</sup> 19/6	<sup>11)</sup> 20/-	<sup>11)</sup> 20/6	25/-	25.-	25.-	22/3	22/1	22/4 1/2	20/10
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.)										
French (on sample)	18/9	18/9	19/-	19 1/2	18 7/8	18 9/16	n. q.	<sup>*</sup> 20.4	<sup>*</sup> 19 8/16	n. q.
South Russian (on sample)	<sup>11)</sup> 25/3	<sup>11)</sup> 25/6	<sup>11)</sup> 26/-	n. q.	n. q.	n. q.	n. q.	24 6/16	n. q.	<sup>*</sup> 19 5/16
No. 1 Northern Manitoba (Atlantic)	31 0/16	31 9/16	31 9/16	30 10/16	30/3	30/4	33 1/16	29/6	31 7/16	26/9
No. 1 Northern Manitoba (Pacific)	30/3	n. 30 10/16	31 1/16	29 9/16	28 4/16	28 11/16	33 4/16	29 4/16	31 2/16	26/7
No. 3 Northern Manitoba (Pacific)	27 5/16	n. 28 4/16	28 5/16	n. 27/-	25 9/16	26 3/16	30/9	27 3/16	28 5/16	24 5/16
White Pacific.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	<sup>*</sup> 20/5
Rosafé (afloat) 8)	<sup>11)</sup> n. 25/-	<sup>11)</sup> 24 10/16	<sup>11)</sup> 25/-	n. q.	22/9	<sup>*</sup> 22/4	25 7/16	22 10/16	22 3/16	19 5/16
Australian	26 4/16	26/6	26/9	26/6	25/6	25 6/16	29 10/16	26 4/16	26 0/16	23/4
Milan (b): Home-grown, soft, * Buono mercantile * 76-78 kg. p. hl. (lire p. q.)	<sup>11)</sup> 101.00	<sup>11)</sup> 100.00	<sup>11)</sup> 100.00	<sup>11)</sup> 93.00	<sup>11)</sup> 92.00	92.10	<sup>11)</sup> 83.25	<sup>11)</sup> 83.85	95.80	83.85
Genoa: Sicilian Durum (c. i. f., lire p. quint.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	102.95	109.00	<sup>*</sup> 113.05	107.85
Genoa (c. i. f.; U. S. \$ p. quintal):										
No. 2 Manitoba (Pacific)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	3.67	3.01	<sup>*</sup> 3.38	<sup>*</sup> 2.87
No. 2 Canadian Durum 9)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	4.06	3.11	<sup>*</sup> 4.09	3.11
Bahia Blanca, 79 kg. p. hl. 10)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	125/4	n. q.	<sup>*</sup> 111/-	<sup>*</sup> 93/6
Rye.										
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 3)	<sup>11)</sup> 15.70	<sup>11)</sup> 15.70	<sup>11)</sup> 15.70	16.80	16.80	16.80	<sup>11)</sup> 15.50	<sup>11)</sup> 14.12	16.29	15.34
Hamburg (c. i. f.; Rm. p. quintal): Plata, 72-73 kg p hl.	4.37	4.44	4.38	4.35	4.30	4.42	7.43	5.84	5.76	4.76
Budapest: Pest rye (pengő p. quintal)	...	...	...	...	...	...	<sup>*</sup> 11.59	<sup>*</sup> 4.95	...	5.24
Warsaw: Good quality (złoty p. quint.)	9.87	9.87	10.62	11.37	11.87	12.12	17.50	15.12	14.82	14.32
Winnipeg: No. 2 (cents p. 56 lb.)	36 <sup>3</sup> / <sub>8</sub>	38 <sup>3</sup> / <sub>8</sub>	37 <sup>3</sup> / <sub>8</sub>	38	35 <sup>3</sup> / <sub>8</sub>	34 <sup>3</sup> / <sub>8</sub>	68 <sup>3</sup> / <sub>8</sub>	51 <sup>3</sup> / <sub>8</sub>	52 <sup>3</sup> / <sub>8</sub>	47 <sup>3</sup> / <sub>8</sub>
Minneapolis: No. 2 (cents p. 56 lb.)	44 <sup>3</sup> / <sub>8</sub>	45 <sup>3</sup> / <sub>8</sub>	46 <sup>3</sup> / <sub>8</sub>	45 <sup>3</sup> / <sub>8</sub>	43 <sup>3</sup> / <sub>8</sub>	42 <sup>3</sup> / <sub>8</sub>	87 <sup>3</sup> / <sub>8</sub>	70 <sup>3</sup> / <sub>8</sub>	67 <sup>3</sup> / <sub>8</sub>	63
Groningen (c): Home-grown (fl. p. quint.)	...	6.62	6.95	7.15	7.30	7.20	7.93	n. q.	7.35	6.65

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal — a) Thursday prices. — b) Saturday prices. — c) Prices of preceding Tuesday.

1) August-July. — 2) From 9 Aug 1935, No. 1 Dark Northern Spring. — 3) 1 Oct. 1933-15 Aug. 1934 for wheat and 1 Oct. 1933-15 July 1934 for rye: minimum prices, subsequently fixed producers prices for the price region of Berlin city. See Government measures, No. 2 — 4) From Nov. 1934, No. 1 Manitoba. — 5) Year 1933, 79 kg p. hl., subsequently, 80 kg. — 6) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations. For the regulations on milling see Government measures, No. 2 — 7) From Aug. 1933, prices on the farm. — 8) Aug. — Oct. 1933, 63 1/2 lb. p. bushel, Nov-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 1/2 lb. — 9) From Dec. 1934, No. 1. Can. Dur — 10) From Feb 1934, prices in sh. p. 1000 kg — 11) New crop. — 12) Shipping current month.

DESCRIPTION	16	9	2	26	19	AVERAGE					Commercial	
	August	August	August	July	July	July	August	August			Season 1)	
	1935	1935	1935	1935	1935	1935	1934	1933			1934-35	1933-34
<b>Barley.</b>												
Warsaw: Malting, good quality (zloty p. quintal) . . . . .	13.00	13.00	14.00	14.25	14.75	15.25	21.45	n. q.			19.60	15.87
Braila: Average quality (lei p. quintal) . . . . .	220	200	180	180	180	183	272	144			246	154
Prague: Malting, av. qual. (crs. p. quintal) 2)	125.00	125.00	125.00	n. q.	n. q.	n. q.	125.00	n. q.			131.70	94.20
Winnipeg: No. 4 Western (cents p. 48 lb.) . . . . .	30 1/2	30 1/2	30 1/2	32 1/2	31 1/2	31 1/2	55 1/2	40 1/2			45 1/2	36 1/2
Chicago: Feeding (on sample; cents p. 48 lb.) . . . . .	38	41	40	45	38	42	77	44 1/2			72 1/2	54
Minneapolis: No. 2 Feeding (c. p. 48 lb.) . . . . .	37	37	38	42	41	40	71 1/2	46 1/2			67 1/2	45 1/2
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint) 3) 4).	16.00	16.00	16.00	16.00	16.00	16.35	15.40	15.00			16.16	16.17
Antwerp: Danubian (in bond; francs p. q.) . . . . .	71.00	73.00	73.00	70.00	71.00	73.25	72.80	48.85			69.45	49.35
London: English malting, best quality (sh p. 448 lb.) 5) . . . . .	n. q.	n. q.	n. q.	n. 28/6	n. 28/6	n. 28/6	* 44/2	* 46/3			38/-	* 39/5 1/2
Liverpool and London (c. i. f., parcels, shipping current month, sh p. 400 lb.):												
Danubian, 3 % dirt . . . . .	n. q.	14/3	13/9	* 13/6	* 13/3	13/3 1/2	22/4	13/7 1/2			* 19/2 1/2	* 13/9 1/2
Russian (Azoff, Black Sea) . . . . .	13/9	13/9	13/6	13/6	13/3	13/4 1/2	n. q.	13/9 1/2			n. q.	* 13/7 1/2
No. 3 Canadian Western . . . . .	15/7 1/2	16/-	16/-	16/3 1/2	16/3	16/3	24/6	* 21/1 1/2			21/10 1/2	17/9 1/2
Californian malting (sh p. 448 lb.) . . . . .	21/6	21/6	22/-	23/6	23/6	* 23/6	32/6 1/2	n. 26/-			* 31/6	22/7 1/2
Plate (64-65 kg. p. hl) . . . . .	* n. 14/-	* 14/3	* 14/9	* 14/6	* 13/9	* 14/-	22/10 1/2	14/6			18/4	14/2 1/2
Persian . . . . .	13/9	13/9	13/7 1/2	13/6	* 13/1 1/2	* 13/5 1/2	22/11 1/2	14/1			18/6	* 14/0 1/2
Groningen a) Home grown, winter (fl. p. q) . . . . .	4.10	4.25	4.50	4.65	4.75	5.32	* 4.42	5.30			5.30	4.44
<b>Oats.</b>												
Braila: Good quality (lei p. quintal) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 146			n. q.	* 148
Winnipeg: No. 2 White (cents per 34 lb) . . . . .	36 1/2	37 1/2	35 1/2	42 1/2	44	43 1/2	43 1/2	38 1/2			42 1/2	33 1/2
Chicago: No. 2 White (cents per 32 lb) . . . . .	31 1/2	n. 34	35 1/2	37 1/2	36 1/2	36 1/2	52 1/2	38 1/2			50 1/2	37 1/2
Buenos Aires b): Current quality (paper pesos p. quintal) . . . . .	5.60	5.75	5.85	5.55	5.30	5.22	5.89	3.80			5.39	3.65
Berlin: Home grown (free at Brandenburg stations; Rm. p. quint) 3) . . . . .	16.90	16.90	16.90	16.90	16.90	16.90	* 15.60	* 13.70			16.39	14.92
Paris: Home grown, black and other (delivery regional depots; frs. p. quintal) . . . . .	39.75	40.25	37.50	35.00	36.60	37.85	55.55	* 53.60			48.50	48.00
London: Home grown white (sh. p. 336 lb.) 5) . . . . .	* 18/-	* 18/-	* 18/-	23/-	23/-	23/-	19/3 1/2	15/5			20/10	18/1 1/2
Liverpool and London (c. i. f., parcels, shipping current month, sh. p. 320 lb.):												
Canadian, No. 2 Western (Pacific) 6) . . . . .	19/10 1/2	20/1 1/2	20/-	20/9	20/9	20/11 1/2	22/-	* 19/4 1/2			20/10 1/2	* 17/4
Plate (f a q) . . . . .	13/6	13/10 1/2	n. q.	13/7 1/2	12/9	12/11	14/4 1/2	11/5 1/2			13/0 1/2	10/2
Milan (c) (lire p. quintal):												
Home grown . . . . .	* 81.00	79.00	n. q.	n. q.	n. q.	* 67.50	54.00	47.35			61.25	50.70
Foreign . . . . .	* 77.00	74.00	74.00	69.00	69.00	68.50	55.00	48.00			60.45	50.05
<b>Maize.</b>												
Braila: Average quality (lei p. quintal) . . . . .	n. 290	n. 290	250	240	240	* 238	n. 270	162			* 223	* 173
Chicago: No. 3 Yellow (cents p. 56 lb.) . . . . .	83 1/2	84 1/2	85 1/2	85 1/2	84 1/2	84	77 1/2	52			78 1/2	46 1/2
Buenos Aires (b) Yellow Plata (paper pesos p. quintal) . . . . .	4.40	4.40	4.40	4.40	4.40	4.40	7.06	3.90			5.72	4.26
Antwerp (in bond; francs p. Plata):												
Yellow Plata . . . . .	52.50	54.50	55.00	54.00	52.50	53.94	58.90	43.60			53.70	48.35
Cinquantino (Argentine "Cuarentino") . . . . .	54.50	56.50	56.50	55.50	54.50	57.25	61.50	58.00			58.25	58.00
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):												
Danubian . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	24/6	* 16/1 1/2			* 20/-	16/9 1/2
Yellow Plata . . . . .	14/9	14/10 1/2	15/1 1/2	15/1 1/2	15/-	15/0 1/2	23/10 1/2	15/7			19/8 1/2	16/7
No. 2 White flat African . . . . .	n. 15/9	n. 16/-	15/10 1/2	16/11 1/2	16/6	16/8	n. q.	n. q.			21/4 1/2	n. q.
Milan (c): "Alto Milanese" (lire p. quint.) . . . . .	* 84.50	84.50	80.50	77.00	77.00	78.25	63.50	48.00			58.50	58.80

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Prices of preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats: August-July, maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. — 3) From 16 July 1934 for fodder barley and from 1 August 1934 for oats, fixed producers' prices for the *price region* of Berlin city. See *Government measures*, No. 2. — 4) Sept. 1933-June 1934, spring barley, average quality. — 5) From August 1933, prices on the farm. — 6) June-Dec 1934 and from May 1935, Atlantic. — 7) Fodder barley. — 8) New crop. — 9) Shipping August-Sept. — 10) New crop shipping August; 12 July 13/-, 5 July. 13/9. — 11) Shipping August — 12) Shipping September. — 13) Prices of 14 August.

DESCRIPTION	16	9	2	26	19	AVERAGE			Commercial	
	August	August	August	July	July	July	August	August	Season 1)	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Rice (milled).</b>										
Valencia (a): No. 3 Belloch (pesetas p. quintal) . . . . .	58.50	58.50	58.50	58.00	58.00	57.75	45.70	37.00	46.95	43.10
Milan (b) (lire p. quintal):										
Vialone, oiled . . . . .	<sup>a)</sup> 149.00	149.00	149.00	147.00	148.00	147.75	165.00	226.85	177.10	198.20
Maratelli, oiled . . . . .	<sup>a)</sup> 130.00	130.00	130.00	127.00	127.50	128.60	123.00	140.75	138.05	139.90
Originario, white . . . . .	<sup>a)</sup> 127.50	127.50	127.00	123.00	123.50	124.85	101.35	97.00	102.80	95.50
Rangoon: No. 2 Burma (rupees p. 7500 lb.)	240	255	257 1/2	262 1/2	262 1/2	263 1/2	246	195	201 1/2	194 1/2
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % broken . . . . .	...	...	...	4.35	4.47 <sup>a)</sup>	4.40	3.85	4.55	3.25	4.08
No. 2 Japan, 40 % broken . . . . .	...	...	...	4.04	4.17 <sup>a)</sup>	4.09	3.67	4.80	3.09	3.90
Marseilles (a): No. 1 Saigon (c. i. f.; frs. p. quintal) . . . . .	58.00	60.00	56.00	56.00	56.00	56.75	49.80	53.60	45.95	53.10
London (a) (c. i. f.; shillings p. cwt.):										
No. 3 Spanish Belloch, oiled . . . . .	13/-	13/-	13/-	13/-	13/-	13/-	9/9	* 9/11 1/2	* 10/9	12/5 1/2
No. 6 Italian good, oiled . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	10/9 1/2	* 12/10	11/10 1/2	11/2 1/2
American Blue Rose, extra fancy . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	15/3	* 17/6 1/2	17/3 1/2	16/9 1/2
No. 2 Rangoon or Bassein (Burma) . . . . .	7 1/4 1/2	7/6	7/7 1/2	7/7 1/2	7/9	7/9 1/2	7/11	6/8 1/2	6/7 1/2	6/6 1/2
No. 1 Saigon . . . . .	7/3	7/4 1/2	7/6	7/7 1/2	7/9	7/7 1/2	7/2	7/4	6/3 1/2	6/9 1/2
Siam Super, white . . . . .	9/4 1/2	9/3 1/2	9/4 1/2	9/4 1/2	9/7 1/2	9/7 1/2	8/6	8/6 1/2	7/5	8/1 1/2
Tokyo: Chumai (brown Japanese, average quality, yen p. koku) . . . . .	30.50	30.20	29.80	29.90	30.10	29.85	27.56	20.82	26.09	21.62
<b>Linseed.</b>										
Buenos Aires (a): Current quality (paper pesos p. quintal) . . . . .	12.00	11.95	12.15	11.95	11.80	11.74	14.37	11.94	12.74	10.56
Antwerp: Plate (in bond; frs. p. quint.) . . . . .	136.50	137.00	136.00	131.00	128.00	124.00	119.10	126.35	107.60	111.70
London (c. i. f.; £ p. long ton):										
Plate (delivery Hull) . . . . .	9-7-6	9-8-9	9-11-3	9-8-9	9-6-3	9-4-4	11-3-0 n.	10-17-10	10-0-8	9-11-11
Bombay bold . . . . .	11-12-6	11-17-6	12-2-6	11-16-3	11-17-6	11-15-0	12-16-9	12-0-7	11-17-0	11-5-4
Duluth: No. 1 Northern (quotations of terminal market; cents p. 56 lb.) . . . . .	<sup>a)</sup> 153 1/2 <sup>a)</sup>	160	<sup>a)</sup> 163 1/2	165	158 1/2	157 1/2 <sup>a)</sup>	196 <sup>a)</sup>	190	186 1/2	156 1/2
<b>Cotton seed.</b>										
Alexandria (piastres p. ardeb):									1933-34	1932-33
Upper Egypt . . . . .	64.4	59.5	61.7	63.9	66.0 <sup>a)</sup>	65.7	* n. 48.7 n.	51.9	41.8	67.3
Sakellaris . . . . .	60.9	56.5	58.2	61.4	64.0 <sup>a)</sup>	62.7	* n. 45.4 n.	48.8	* 37.5	63.6
London: Sakellaris (c. i. f., delivery Hull; £ p. long ton) . . . . .	n. 6-6-3 n	5-15-0 n	5-15-0 n	6-2-6 n	6-1-3 n	6-1-3.	5-1-6	5-5-11	4-5-11	6-11-4
<b>Cotton.</b>										
New Orleans: Middling (cents p. lb.) . . . . .	11.65	11.50	11.90	12.05	12.05	12.16	13.29	9.51	12.47	10.90
New York: Middling (cents p. lb.) . . . . .	11.75	11.60	11.95	12.15	12.30	12.27	13.40	9.56	12.46	11.07
Bombay: M. g. Broach f. g. (terminal market quotations; rup. p. 784 lb.) . . . . .	225	231	229	228	234	233 1/2	225 1/4	195 1/2	230 1/2	197
Alexandria (talars p. kantar):										
Sakellaris, f. g. f. . . . .	14.70	14.55	14.85	14.90	14.80	14.66	15.62	13.94	15.20	14.44
Ashmuni-Zagora, f. g. f. . . . .	13.47	13.32	13.82	13.90 n	13.75	13.70	13.35	12.48	13.34	11.63
Bremen: Middling (U. S. cents p. lb.) . . . . .	13.72	13.65	14.01	13.99	14.27 <sup>a)</sup>	14.25	15.28	11.08	14.38	12.56
M. g. Broach, f. g. (pence p. lb.) . . . . .	n. 6.05 n.	6.05 n.	6.05 n.	6.10 n.	6.30 <sup>a)</sup>	6.30 n.	5.60 n.	4.89 n.	6.04 n.	4.81
Le Havre: Middling (Gulf; frs p. 50 kg.) . . . . .	239.50	239.00	243.50	248.50	248.50	248.87	261.80	235.50	250.75	229.85
Liverpool (pence per lb.):										
Middling, fair . . . . .	n. 7.46 n.	7.38 n.	7.58 n.	7.70 n.	7.92 n.	7.82 n.	8.22 n.	7.03 n.	n. 7.95 n.	7.11
Middling . . . . .	6.56	6.48	6.68	6.80	7.02	6.92	7.17	5.83	6.94	6.02
São Paulo, g. f. . . . .	6.71	6.63	6.83 n.	6.95 n.	7.12 n.	7.05	7.12 n.	6.11	6.99	6.13
C. P. Oomra, superfine . . . . .	5.61	5.59	5.86	6.06	6.21	6.14	5.52	5.07	5.73	4.92
M. g. Broach, f. g. . . . .	5.48	5.46	5.66	5.83	6.05	5.93	5.35 n.	4.79	5.61 n.	4.62
Egyptian Sakellaris, f. g. f. . . . .	8.18	8.10	8.09	8.07	8.03	8.03	8.74	7.86	8.52	8.07
Upper Egyptian, f. g. f. . . . .	7.35	7.26	7.41	7.38	7.42	7.42	7.48	7.10	7.55	6.64

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July — 2) Price of 14 August — 3) 12 July 4 38; 5 July 4 40 — 4) 12 July: 4 07; 5 July: 4 10. — 5) September futures. — 6) 12 July. 66 6. — 7) 12 July: 63 1 — 8) 12 July 14 33 — 9) 12 July n. 6 45

DESCRIPTION	16	9	2	26	19	AVERAGE				Commercial Season	
	August	August	August	July	July	July	August	August			
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933	
<b>Bacon.</b>											
London, Provision Exchange (a) (shill. p. cwt.):											
English, No 1, lean sizable	88/-	92/6	92/6	92/6	93/-	94/7	94/9	...	91/2	...	
Danish, No 1, sizable	87/-	93/-	93/-	93/-	93/-	94/-	93/5	84/6	87/11	74/5	
Irish, No 1, sizable	85/6	93/-	93/-	94/-	94/-	95/7	93/9	95/-	90/5	83/4	
Lithuanian, No 1, sizable	80/-	84/-	84/-	84/-	84/-	85/-	89/5	75/9	82/-	65/5	
Dutch, No 1, sizable	83/-	90/-	90/-	90/-	90/-	91/9	89/5	78/6	84/-	67/6	
Polish, No 1, sizable	78/-	82/-	82/-	82/-	82/-	83/-	88/9	74/-	80/11	63/10	
Swedish, No 1, sizable	83/-	90/-	90/-	90/-	90/-	92/-	89/7	80/6	84/4	70/-	
Canadian, No 1, sizable	78/-	82/-	82/-	82/-	82/-	83/-	89/-	74/6	80/3	64/6	
<b>Butter.</b>											
Copenhagen (b): Danish (crs p. quint.)	185.00	185.00	185.00	180.00	170.00	169.50	177.60	177.20	160.75	171.00	
Leeuwarden, Commission for butter quotations (b): Dutch (cents p.kg.)	46	46	48	45	43	43	43	63	44 1/2	60	
Zutphen, auction: Dutch (price for home consumption, cents p. kg.)	n. q.	n. q.	151	148	146	146	146	166	147 1/2	159 1/2	
Germany (c) (fixed prices; Rm. p. 50 Kg.) 1):											
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	131.00	123.04	129.04	112.72	
Creamery butter	123.00	123.00	123.00	123.00	123.00	123.00	122.00	117.25	120.87	106.25	
London (d): English creamery, finest quality (shillings p. cwt.)	121/4	121/4	121/4	112/-	112/-	113/10	106/3	134/5	109/6	140/10	
London, Provision Exchange (a) (shill. p. cwt.):											
Danish creamery, unsalted.	108/-	109/6	110/-	108/-	102/-	102/3	106/3	104/5	98/8	103/9	
Estonian, unsalted	91/-	92/-	n. q.	87/-	82/6	83/6	69/2	80/8	* 67/11	* 84/4	
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	69/-	80/11	* 69/3	* 82/9	
Dutch creamery, unsalted	87/6	90/-	87/6	84/-	83/-	83/3	76/2	104/5	80/4	103/4	
Argentine, finest, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	79/6	* 68/3	* 77/10	
Siberian, salted	87/6	89/-	88/-	87/-	82/-	83/7	68/2	74/7	* 66/-	* 73/5	
Australian, finest, salted.	93/6	93/-	92/6	90/6	86/6	87/3	75/-	88/11	70/2	80/-	
New Zealand, finest, salted	94/6	93/6	93/6	92/6	89/6	90/-	79/9	89/3	72/7	81/1	
<b>Cheese.</b>											
Milan (lire p. quintal):											
Parmigiano-Reggiano, 1st quality, production 1932 2)	735.00	735.00	735.00	720.00	720.00	720.00	n. q.	1,262.00	989.00	1,234.00	
Parmigiano - Reggiano, 1st quality, production 1933 2)	660.00	660.00	660.00	635.00	635.00	630.00	740.00	1,050.00	806.00	1,015.00	
Green Gorgonzola, mature, choice	495.00	495.00	495.00	475.00	485.00	492.50	415.00	422.50	412.60	473.70	
Rome: Roman Pecorino, choice (lire p. q)	875.00	875.00	875.00	837.50	837.50	834.35	592.00	1,019.00	658.65	1,029.00	
Alkmaar. Edam 40 + (40 % butterfat, with the country's cheese-mark) factory cheese, small (florins p. 50 kg.)	16.00	15.00	17.00	14.50	13.50	14.00	22.50	20.00	20.98	22.40	
Gouda: Gouda 45 + (whole milk cheese, with the country's cheese-mark) home made (florins p. 50 kg.)	19.50	18.50	18.50	18.00	17.00	17.00	22.00	24.25	22.52	26.59	
Kempten (c) (Rpf p. 1/2 kg.):											
Soft cheese, green, 20 % butterfat	26	26	26	26	26	26	22 1/2	23 1/2	23 1/2	20 1/2	
Emmenthal from the Allgau, whole milk cheese, 1st quality	77	77	77	77	77	77	71	71 1/2	71 1/2	72 1/2	
London, Provision Exchange (a) (shill. p. cwt.):											
English Cheddar, finest farmers	60/6	60/6	56/-	56/-	n. q.	n. q.	75/5	68/8	* 83/5	86/3	
English Cheshire, officially graded 3)	58/4	58/4	56/-	53/8	56/-	55/5	62/1	75/7	83/4	94/4	
Italian Gorgonzola (d)	101/6	100/4	99/2	98/-	98/-	99/8	79/7	81/-	82/9	85/3	
Dutch Edam, 40 + (d)	43/3	42/6	39/-	36/-	32/-	34/1	49/7	50/2	54/5	59/8	
Canadian, finest white	64/6	64/6	63/-	63/-	63/6	63/1	60/-	50/11	54/-	59/8	
New Zealand, finest white	48/6	47/9	45/3	44/3	43/9	44/5	49/3	48/4	46/5	46/10	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n = nominal — a) Average prices of Thursday and Friday morning. — b) Thursday prices. — c) Wednesday prices. — d) Average prices for the week.

1) See note on page 306 of the *Crop Report* of April 1934. — 2) Prices of 1932 cheese are compared for the Commercial Seasons 1934 and 1933 with those of cheese made in 1931 and in 1930 respectively; prices of 1933-cheese with those of cheese made in 1932 and 1931. The yearly averages refer to periods from Sept. to August. — 3) From May 1934 onwards, National Mark, selected.



DESCRIPTION	16	9	2	26	19	AVERAGE					Commercial	
	August	August	August	July	July	July	August	August	Season 1)			
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933		
Eggs.												
Antwerp, auction: Belgian, average qual. (frs. p. 100) . . . . .	55.00	56.00	55.00	48.00	44.00	44.25	43.40	45.75	42.80	48.40		
Denmark (a): Danish for export (crs. per quintal) . . . . .	120.00	120.00	110.00	96.00	84.00	*) 78.80	106.50	94.50	103.60	105.85		
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100) 2):					2.95	...	3.58	3.37	3.96	3.48		
Fixed price for export into Germany . . . . .	...	...	...	...	2.50	...	3.15	3.37	3.34	3.48		
Price for other destinations . . . . .	...	...	...	...	...	...	...	...	...	...		
Warsaw (b): Polish, average weight 50 gr. each, different colours (zloty p. 1440, including box) . . . . .	85.00	95.00	95.00	90.00	90.00	90.00	86.50	104.00	106.50	123.60		
Berlin (c): German, big, new laid (Rm. p. 100):												
marked «GIS», 65 gr. each . . . . .	11.50	11.50	10.50	10.50	10.50	10.12	9.67	9.94	10.37	10.41		
marked «GIB», 55/60 gr. each. . . . .	10.00	10.00	9.25	9.25	9.25	8.87	8.15	8.86	9.03	9.05		
London, Egg Exchange (d) (sh. p. great hundred):												
English, National mark, specials . . . . .	17/6	17/6	17/6	16.6	14/6	14 5/16	17 2/16	17/3	15/5	15 10/16		
Belgian, 15 1/2 lb. p. 120 . . . . .	11/3	10 7/16	10 4/16	9/3	n. q.	*) 9 9/16	n. q.	11/6	*) 11/0	*) 11/1		
Danish, 18 lb. p. 120 . . . . .	13/3	13/-	12/3	11 1/16	10 7/16	*) 10 6/16	12 8/16	12 11/16	*) 12 5/16	*) 12 9/16		
North Irish, 18 lb. p. 120 . . . . .	16 7/16	15 10/16	16/9	15/3	n. q.	*) 13 5/16	17/2	16 0/16	*) 12 9/16	*) 15/1		
Dutch, all brown, 18 lb. p. 120 . . . . .	14 7/16	13/9	13/3	n. q.	10 7/16	*) 10 11/16	13 9/16	14 1/16	*) 13/5	*) 14 10/16		
Polish, 51/54 grams each 3) . . . . .	8/-	7 10/16	7 4/16	6 7/16	6/6	6/6	7 5/16	7 0/16	*) 6 10/16	*) 7 4/16		
Chinese, violet . . . . .	9/3	9 1/16	9 4/16	n. q.	n. q.	n. q.	9 1/16	*) 9 7/16	*) 8 3/16	*) 9 10/16		
Australian, 16 lb. p. 120 . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*) 11 5/16	*) 12 4/16		
Maritime freights.												
(RATES FOR ENTIRE CARGOES).												
Shipments of Wheat and Maize.												
(RATES FOR ENTIRE CARGOES).												
Danube to Antwerp/Hamburg. } (shill. per	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	13 6/16	*) 13/11	*) 14/1		
Black Sea to Antwerp/Hamb. } long ton)	9/9	9/9	9 7/16	9 7/16	9 7/16	9 4 1/2	9 5/16	9 3/16	*) 9/11	10/3		
St. John to Liverpool 4) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*) 1/6	*) 1/11		
Port Churchill to United Kingdom . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*) 2/9	*) 2/9		
Montreal to United Kingdom. } (shill. per	1/6	n. 1/6	n. 1/6	n. 1/6	n. 1/6	n. 1/6	1 4/16	1 3/16	*) 1/6	*) 1 4/16		
Gulf to United Kingdom 4) . . . . .	2/6	2/6	2/6	2/6	2/6	2/6	2/6	n. q.	2/6	*) 2 6/16		
New York to Liverpool 4) . . . . .	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/3	1/6	*) 1/6		
Northern Range to U.K./Cont. )	n. q.	1/6	1/6	1/6	1/6	1/6	n. q.	n. q.	n. q.	*) 1/9		
North Pacific to United Kingdom (sh. per long ton) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19 11 1/2	18/6	*) 18 11 1/2	*) 20/1		
Vancouver to Yokohama 4) (U.S.A. \$ p. short ton) 5) . . . . .	...	...	...	...	...	...	2.46	2.15	...	2.41		
La Plata Down River 6) } (shill. per	*) 15/9	*) 15/9	*) 15/9	*) 15/9	*) 15/9	*) 15/9	15 1/16	14 0/16	14/11	14/1		
/Bahia Blanca to U.K./Continent . . . . .	*) 17/-	*) 17/-	*) 17/-	*) 17/-	*) 17/-	*) 17/-	16/6	16 3/16	16/2	15/9		
La Plata Up River 7) /Necochea to U.K./Continent. )	*) 24/6	*) 24/6	*) 24/6	*) 24/6	*) 24/6	*) 24/6	24/6	*) 23/7	24/6	23 10/16		
Western Australia to U.K./Continent . . . . .	...	...	...	...	...	...	...	...	...	...		
Shipments of Rice.												
(RATES FOR ENTIRE CARGOES).												
Saigon to Europe . . . . . } (shill. per	19/6	19/6	19/-	19/-	19/-	19/-	23/6	23/9	24 2/16	23 5/16		
Burma to U. K./Continent . . . . . } long ton)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*) 22/9	*) 23/3	*) 23 1/16		

\* Indicates that the product or the maritime freight, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal — a) Average prices for weeks beginning on Mondays. — b) Average prices for weeks beginning on preceding Mondays. — c) Thursday prices — d) Prices of preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) See note on p. 307 of the *Crop Report* of April 1934. — 3) From Nov. 1933, 51/52 grams each. — 4) Rates for parcels by liners. — 5) May-Oct. 1934 and from 25 Jan 1935, Canadian \$. — 6) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 7) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 8) June average (revised): 76 00. — 9) Minimum rates, see notes on p. 247 and p. 321.

## EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1)

NATIONAL CURRENCIES	Exchange rates					Percentage bonus (+) or loss (—)				
	16 August 1935	9 August 1935	2 August 1935	26 July 1935	19 July 1935	16 August 1935	9 August 1935	2 August 1935	26 July 1935	19 July 1935
Germany: free reichsmark.	123.250	123.250	123.000	123.250	123.125	0.2	0.2	0.4	0.2	0.3
Argentina: paper peso †)	95.031	94.762	94.687	95.156	94.375	56.8	56.9	57.0	56.7	57.1
Belgium: belga.	51.600	51.625	51.750	51.950	51.550	0.5	0.5	0.3	0.1	0.6
Canada: dollar	3.047	3.045	3.056	3.055	3.045	41.2	41.3	41.2	41.1	41.3
Denmark: crown	67.800	67.800	67.700	67.950	67.375	51.2	51.2	51.3	51.1	51.5
Spain: peseta	41.975	41.900	41.950	42.000	41.900	58.0	58.1	58.1	58.0	58.1
United Kingdom: pound sterling	15.205	15.162	15.150	15.225	15.100	39.7	39.9	39.9	39.6	40.1
United States: dollar	3.052	3.055	3.056	3.068	3.049	0.3	0.2	0.2	0.2	0.4
France: franc	20.265	20.240	20.245	20.260	20.235	0.2	0.3	0.3	0.2	0.3
Hungary: pengo 4)	59.550	58.575	58.025	59.500	58.750	34.3	35.4	36.0	34.4	35.2
India: rupee †)	114.798	114.573	114.382	114.949	114.005	39.3	39.5	39.5	39.2	39.7
Italy: lira	25.150	25.100	25.075	25.100	25.200	7.8	8.0	8.1	8.0	7.6
Japan: yen †)	89.900	89.645	89.385	89.827	89.090	65.2	65.3	65.4	65.2	65.5
Netherlands: florin	207.000	206.750	207.250	206.125	208.000	0.6	0.8	0.5	1.1	0.2
Poland: zloty	57.850	57.850	57.800	57.875	57.800	0.5	0.5	0.6	0.5	0.6
Rumania: leu	3.100	3.100	3.100	3.100	3.100	0.0	0.0	0.0	0.0	0.0
Sweden: crown	78.400	78.200	78.150	78.400	77.800	43.6	43.7	43.7	43.6	44.0
Czechoslovakia: crown	12.700	12.700	12.700	12.735	12.745	0.8	0.8	0.8	0.5	0.4

1) The exchange rate represents the value of 100 units of the national currency (for the dollar and the pound sterling 1 unit) expressed in Swiss francs, as far as possible on the Zurich Exchange. With regard to the currencies marked thus (†) a conversion has been made, the original exchange rates on London being converted into Swiss francs by means of the rate of the £ in Zurich. — 2) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 3) As the relation between the Indo-Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given. — 4) Bank notes.

## VARIATIONS IN THE INDEX-NUMBERS OF PRICES

On the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, it has been considered opportune to reproduce all the data in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

*Percentage variations in the index-numbers for July 1935.*

COUNTRIES	Comparison with June 1935		Comparison with July 1934	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany	+ 1.6	+ 0.6	+ 5.7	+ 2.9
England and Wales	+ 2.6	+ 0.7	+ 2.6	+ 2.4
Argentina	+ 0.7	—	— 2.3	—
Canada	+ 0.2	0.0	+ 2.5	— 0.7
United States: Bur. of Agric. Economics	— 1.9	—	+ 17.2	—
United States: Bur. of Labor	— 1.5	+ 0.6	+ 19.5	+ 6.1
Finland	+ 4.0	0.0	+ 8.3	+ 1.1
Hungary	+ 5.3	+ 3.4	+ 19.7	+ 13.9
Italy	— 0.6	+ 1.5	+ 21.9	+ 16.9
New Zealand	+ 4.4	—	— 2.8	—
Netherlands	— 2.0	— 1.2	— 7.5	— 3.8
Poland	+ 1.6	— 8.0	+ 0.8	— 5.2
Yugoslavia:				
plant products.	...	...	...	...
livestock products	...	...	...	...

# **INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER <sup>1)</sup>**

DESCRIPTION	July	June	May	April	March	Feb.	July	July	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Germany</b>										
(Statistisches Reichsamt)										
1913 = 100.										
Foodstuffs of plant origin . . . . .	116.2	115.0	114.5	114.1	114.1	113.8	115.0	100.6	108.7	98.7
Livestock . . . . .	85.9	83.2	80.6	79.2	76.7	74.9	67.8	62.3	70.9	64.3
Livestock products . . . . .	105.5	103.4	103.3	103.1	102.8	107.2	101.9	96.2	105.0	97.5
Feeding stuffs . . . . .	103.8	104.6	104.6	104.8	105.2	105.0	110.6	87.3	102.0	86.4
Total agricultural products . . . . .	103.1	101.5	100.6	100.0	99.3	99.7	97.5	86.6	95.9	86.8
Fertilizers <sup>1)</sup> . . . . .	64.4	65.0	65.1	67.3	67.3	67.3	66.8	69.1	68.6	70.2
Agricultural dead stock . . . . .	111.1	111.1	111.1	111.0	111.0	111.0	111.5	111.9	111.1	111.6
Finished manufactures ("Konsumgüter") . . . . .	123.9	123.8	123.9	124.1	124.4	124.5	115.8	112.2	117.3	111.7
Wholesale products in general . . . . .	101.8	101.2	100.8	100.8	100.7	100.9	98.9	93.9	98.4	93.3
<b>England and Wales</b>										
(Ministry of Agriculture and Fisheries)										
Average for corresponding months of 1911-13 = 100										
Agricultural products <sup>2)</sup> . . . . .	120	117	117	126	119	122	117	104	119	111
Feeding stuffs . . . . .	83	86	88	90	92	92	88	85	91	85
Fertilizers . . . . .	89	89	89	88	88	88	91	91	90	90
Wholesale products in general <sup>3)</sup> . . . . .	99.2	98.5	100.2	98.9	97.5	98.1	96.9	96.1	96.3	93.7
<b>Argentina</b>										
(Banco de la Nación Argentina)										
1926 = 100.										
Cereals and linseed . . . . .	62.5	63.5	64.8	66.7	65.9	65.1	69.6	61.2	68.1	54.4
Meat . . . . .	84.7	80.0	77.8	77.9	78.5	79.1	78.7	66.2	78.5	65.9
Hides and skins . . . . .	75.2	77.3	80.7	77.8	74.4	74.4	60.0	75.7	71.6	63.9
Wool . . . . .	75.4	69.2	70.0	65.4	64.4	65.7	82.1	59.0	84.3	54.6
Dairy products . . . . .	100.5	82.6	75.8	75.0	75.8	75.9	65.0	66.9	62.3	57.4
Forest products . . . . .	91.8	90.4	92.8	92.8	91.9	91.9	71.6	75.7	73.1	72.5
Total agricultural products . . . . .	68.8	68.3	69.2	69.7	69.0	68.5	70.4	63.0	70.5	56.9
<b>Canada</b>										
(Internal Trade Branch of the Dominion Bureau of Statistics)										
1926 = 100.										
Field products (grain, etc.) . . . . .	55.7	55.1	58.0	59.8	56.4	55.7	57.8	60.8	53.9	45.7
Livestock and livestock products . . . . .	71.1	72.0	74.4	72.9	73.3	72.6	63.7	58.9	67.6	59.6
Total Canadian farm products . . . . .	61.5	61.4	64.1	64.7	62.7	62.0	60.0	60.1	59.0	51.0
Fertilizers . . . . .	75.8	75.8	75.8	75.8	75.8	75.8	74.6	73.0	76.2	73.8
Consumers' goods (other than foodstuffs, etc.) . . . . .	75.3	75.7	75.6	75.7	76.1	76.7	77.0	75.2	77.2	76.0
Wholesale products in general . . . . .	71.5	71.5	72.3	72.5	72.0	71.9	72.0	70.5	71.6	67.2

<sup>1)</sup> For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231, December 1934, page 696)

<sup>2)</sup> Revised index-numbers due to the Wheat Act payments and, from 1st. September the Cattle Emergency Act payments. —

<sup>3)</sup> Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	July	June	May	April	March	Feb.	July	July	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>United States</b>										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100.										
Cereals . . . . .	96	102	112	115	111	114	91	94	93	62
Cotton and cottonseed . . . . .	102	103	105	103	102	108	99	84	99	64
Fruits . . . . .	98	100	98	105	90	90	113	81	100	74
Truck crops (market garden crops) . . . . .	93	96	127	156	162	188	102	102	102	105
Meat animals . . . . .	116	119	118	117	117	105	66	66	68	60
Dairy products . . . . .	96	99	107	117	114	121	93	88	96	82
Chickens and eggs . . . . .	107	108	110	105	97	119	76	69	89	75
Miscellaneous . . . . .	85	86	89	92	92	101	94	100	108	83
Total agricultural products . . . . .	102	104	108	111	108	111	87	83	90	70
Commodities purchased 1) . . . . .	126	127	127	127	127	127	122	107	122	109
Agricultural wages 1) . . . . .	99	—	—	94	—	—	90	78	88	80
<b>United States</b>										
(Bureau of Labor)										
1926 = 100.										
Cereals . . . . .	78.3	76.9	83.2	87.9	82.8	87.4	74.8	73.4	74.5	53.1
Livestock and poultry . . . . .	82.8	84.8	87.6	85.9	85.8	78.4	48.8	47.4	51.5	43.4
Other farm products . . . . .	72.9	74.3	75.0	74.5	72.1	76.8	70.5	63.7	70.5	55.8
Total agricultural products . . . . .	77.1	78.3	80.6	80.4	78.3	79.1	64.5	60.1	65.3	51.4
Agricultural implements . . . . .	93.6	93.6	93.6	93.6	93.6	93.6	92.0	83.0	89.6	83.5
Fertilizer materials . . . . .	65.7	65.7	65.9	66.0	66.3	66.2	67.6	68.6	67.1	65.9
Mixed fertilizers . . . . .	68.6	74.5	73.1	72.9	72.8	72.8	72.8	63.3	72.5	64.5
Cattle feed . . . . .	78.6	92.2	107.0	104.9	102.2	109.0	88.8	82.4	89.4	57.9
Non-agricultural commodities . . . . .	79.8	80.0	80.0	79.9	79.5	79.4	76.9	70.7	76.9	69.0
Wholesale products in general . . . . .	79.4	78.9	80.2	80.1	79.4	79.5	74.8	68.9	74.9	65.9
<b>Finland</b>										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals . . . . .	79	79	79	79	79	80	80	93	82	88
Potatoes . . . . .	89	88	84	81	81	81	42	106	49	77
Fodder . . . . .	68	67	66	63	63	63	70	69	72	72
Meat . . . . .	79	72	71	76	78	78	77	64	71	64
Dairy products . . . . .	82	77	75	79	78	80	70	67	75	75
Total agricultural products . . . . .	78	75	74	75	75	76	72	75	73	74
Wholesale products in general . . . . .	90	90	90	90	90	90	89	90	90	89
<b>Hungary</b>										
(Central Bureau Statistics)										
1913 = 100.										
Agricultural and livestock products . . . . .	79	75	77	74	73	75	66	57	—	—
Wholesale products in general . . . . .	90	87	86	86	85	86	79	73	—	—
<b>Italy</b>										
(Consiglio Provinciale dell'Economia										
Corporativa di Milano)										
1913 = 100.										
National agricultural products . . . . .	357.4	359.6	335.1	331.7	324.8	317.9	292.3	261.2	297.9	280.7
Wholesale products in general . . . . .	319.1	314.5	304.4	298.7	289.4	281.5	272.9	283.3	275.8	283.4
<b>New Zealand</b>										
(Census and Statistics Office)										
Average 1909-13 = 100.										
Dairy products . . . . .	88.7	79.5	80.2	77.6	87.1	87.6	84.2	85.7	77.5	84.0
Meat . . . . .	151.5	150.2	152.8	162.1	162.5	163.7	161.0	113.9	152.2	120.7
Wool . . . . .	84.4	84.8	77.5	78.3	80.1	78.1	103.2	65.8	110.0	69.8
Other pastoral products . . . . .	100.7	98.5	84.5	86.8	92.1	79.9	88.3	81.8	80.2	74.5
All pastoral and dairy products . . . . .	105.2	100.6	99.1	100.7	105.9	105.2	108.5	87.0	104.5	88.4
Field products . . . . .	124.5	124.7	124.8	129.3	125.7	123.7	123.5	116.0	120.6	115.8
Total agricultural products . . . . .	105.8	101.3	99.9	101.6	106.5	105.7	108.8	87.8	104.7	89.2

DESCRIPTION	July 1935	June 1935	May 1935	April 1935	March 1935	Feb. 1935	July 1934	July 1933	Year	
									1934-35 2)	1933-34 2)
<b>Norway</b>										
(Kegl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals . . . . .	148	145	143	144	144	144	101	112	126	112
Potatoes. . . . .	240	257	175	147	153	144	282	160	132	103
Pork. . . . .	93	94	90	93	93	89	76	76	83	81
Other meat. . . . .	150	138	142	140	142	139	140	107	137	110
Eggs. . . . .	79	75	67	79	99	93	74	71	92	85
Dairy products. . . . .	139	138	137	135	134	133	130	121	132	126
Concentrated feeding stuffs . . . . .	126	111	113	117	115	118	98	95	109	96
Maize. . . . .	115	95	99	101	101	108	90	82	101	83
Fertilizers. . . . .	78	78	78	78	77	76	88	92	81	87
<b>Netherlands</b>										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products. . . . .	53	58	56	54	52	54	56	46	58	59
Livestock products. . . . .	48	48	47	49	48	48	53	49	49	53
Total agricultural products. . . . .	49	50	50	50	49	49	53	49	51	55
Agricultural wages . . . . .	69	69	69	71	71	71	71	74	71	72
Wholesale products in general 1). . . .	50.1	50.7	50.7	51.4	50.7	52.1	52.1	49.4	52.8	56
<b>Poland</b>										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products . . . . .	33.1	37.2	38.9	34.0	33.2	33.9	38.6	50.2	35.6	41.1
Meat animals. . . . .	37.5	32.4	30.9	31.0	31.6	29.8	36.9	41.4	36.7	42.5
Dairy products and eggs . . . . .	38.8	37.5	36.3	39.3	37.7	39.0	38.1	46.7	41.2	46.7
Products directly sold by farmers . .	35.6	35.6	35.8	34.0	33.5	33.5	37.9	46.7	37.0	42.6
Flour and groats. . . . .	33.8	36.0	38.2	38.4	37.7	38.4	40.7	55.7	38.8	47.8
Meat and lard fat . . . . .	43.1	37.1	36.0	33.8	34.6	33.5	42.1	48.6	43.5	49.8
Sugar, alcohol, beer . . . . .	79.3	79.3	79.2	79.3	79.1	79.3	90.1	90.2	88.6	90.3
Products of agricultural industries .	51.9	50.6	50.8	50.2	50.2	50.1	57.4	64.6	56.7	62.4
Total agricultural products. . . . .	43.7	43.0	43.2	42.0	41.8	41.7	47.5	55.5	46.8	52.4
Commodities purchased. . . . .	66.5	66.8	66.9	67.0	67.0	67.1	70.6	72.7	70.6	72.9
Wholesale products in general. . . . .	53.0	52.6	52.8	52.2	52.1	52.2	55.9	60.6	55.8	59.1
<b>Yugoslavia</b>										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products. . . . .	...	60.1	61.2	58.9	61.1	60.9	60.0	58.1	57.4	57.2
Livestock products. . . . .	...	58.5	56.5	56.3	55.2	57.1	52.0	54.0	55.4	57.1
Industrial products . . . . .	...	65.7	66.4	65.3	64.8	66.0	66.3	70.5	67.4	70.8
Wholesale products in general. . . . .	...	63.9	64.0	62.9	63.0	63.9	62.8	63.7	63.2	64.4

1) Calculated by the the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100 — 2) Agricultural year: Norway, 1st April-31 March; Netherlands, 1st July-30 June. — 3) Calendar year.

Prof. ALESSANDRO BRIZI, Segretario generale dell'Istituto, Direttore responsabile.

28-VIII-1935.

# MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

## CEREALS

The official figures now available of international wheat and flour movements in July show that total net exports during the last month of the commercial year were only slightly larger than the much reduced figures for July.

Total exports for the year 1934-35 were appreciable below the quantity expected at the beginning of the year. As we anticipated last month, they do not reach 510 million bushels.

This is the lowest figure for world trade recorded since the Great War, being even smaller, by 38 million bushels, than the quantity exported in 1933-34 after the record crop obtained in the European importing countries.

### *World net exports of wheat (including flour in terms of wheat)*

(Million bushels)

Months	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August . . . . .	52	45	41	66	77	71
September . . . . .	41	51	48	78	74	57
October . . . . .	50	46	62	74	84	60
November . . . . .	43	41	54	67	77	51
December . . . . .	38	51	60	64	59	50
January . . . . .	43	48	62	62	54	48
February . . . . .	41	44	64	73	70	45
March . . . . .	48	50	64	74	67	50
April . . . . .	40	35	40	70	62	42
May . . . . .	47	44	52	67	81	50
June . . . . .	32	45	42	59	67	51
July . . . . .	33	46	44	45	52	53
<i>Total year . . .</i>	<i>508</i>	<i>546</i>	<i>633</i>	<i>799</i>	<i>824</i>	<i>628</i>

The net imports of the latter countries, as set out in the following table, show that the quantity absorbed by the European importing countries in 1934-35 was 36 million bushels smaller than that of 1933-34.

*Net imports of wheat into Europe (including flour in terms of wheat).*

(Million bushels)

Months	Year 1934-35			Year 1933-34		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European Countries	Total Europe
August. . . . .	18	14	32	19	15	34
September . . . . .	20	16	36	22	13	35
October . . . . .	18	13	31	23	14	37
November. . . . .	17	12	29	22	13	35
December. . . . .	20	12	32	18	10	28
January. . . . .	12	10	22	14	10	24
February. . . . .	16	10	26	16	11	27
March . . . . .	20	11	31	22	15	37
April. . . . .	17	10	27	21	13	34
May . . . . .	22	10	32	20	14	34
June . . . . .	18	10	28	19	14	33
July. . . . .	18	13	31	21	14	35
<i>Total year . . .</i>	<i>216</i>	<i>141</i>	<i>357</i>	<i>237</i>	<i>156</i>	<i>393</i>

The available information on cereal production in the northern hemisphere is now practically complete and makes it possible to assess fairly exactly the total of the crops which have just been harvested.

In the case of *wheat* in Europe, the result is smaller than we expected last month from the first official estimates and from the indications then available of the condition of the crops.

If probable estimates for some countries, which are of smaller importance as wheat producers (Albania, Denmark, Irish Free State, Northern Ireland and Norway), and for which data are as yet unavailable, are added to the official estimates already issued, the total obtained is about 1,540 million bushels.

This figure is based on data which are provisional to a large extent and it may consequently undergo modifications when final estimates are determined.

*Production of wheat in Europe.*

Years	Area (thousand acres)	Production (million bushels)	Unit-yield (bushels per acre)
1935 (estimate) . . . . .	78,600	1,540	19.6
1934 . . . . .	77,300	1,536	19.9
1933 . . . . .	77,800	1,747	22.5
1932 . . . . .	75,400	1,492	19.8
1931 . . . . .	75,900	1,436	18.9
1930 . . . . .	73,600	1,360	18.4
1929 . . . . .	70,200	1,450	20.7
1928 . . . . .	71,400	1,409	19.8
1927 . . . . .	71,200	1,274	17.8
1926 . . . . .	66,900	1,216	17.4
1925 . . . . .	60,700	1,404	20.1

## Wheat.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935 1935/36	1934 1934/35	Average 1929 to 1933 1929/30 to 1933/34	% 1935 1935/36		1935 1935/36	1934 1934/35	Average 1929 to 1933 1929/30 to 1933/34	1935 1935/36	1934 1934/35	Average 1929 to 1933 1929/30 to 1933/34	% 1935 1935/36	
				1934 1934/35	Aver. = 100							1934 1934/35	Aver. = 100
1,000 acres					1,000 centals			1,000 bushels					
Germany . . . .	5,199	5,431	5,015	95.7	103.7	103,062	99,926	96,910	171,767	166,539	161,514	103.1	106.3
Austria . . . .	609	568	524	107.2	116.4	9,308	7,985	7,366	15,513	13,308	12,770	116.6	126.4
Belgium . . . .	386	371	381	104.1	101.3	8,269	9,681	8,487	13,782	16,134	14,144	85.4	97.4
Bulgaria . . . .	2,729	3,057	2,988	89.3	91.3	28,755	24,947	30,951	47,925	41,577	51,584	115.3	92.9
Spain . . . . .	11,063	11,039	11,084	100.2	99.8	89,722	104,162	90,939	149,533	173,600	151,562	86.1	98.7
Estonia . . . .	154	161	111	96.0	138.9	1,545	1,804	1,100	2,576	3,107	1,834	32.9	140.5
Finland . . . .	136	125	53	108.9	257.1	1,969	1,968	803	3,281	3,280	1,339	100.0	245.1
France . . . . .	13,206	13,354	13,278	98.9	99.5	167,261	203,110	183,042	278,763	338,511	305,064	82.3	91.4
Engl. and Wales .	1,771	1,759	1,364	100.7	129.8	35,101	39,155	26,795	58,501	65,259	44,658	89.6	131.0
Scotland . . . .	101	98	57	103.5	177.1	2,429	2,486	1,416	4,048	4,144	2,359	97.7	171.6
*Northern Ireland	9	9	4	104.5	220.1	...	218	92	...	363	153	...	...
Greece . . . . .	2,020	1,957	1,479	103.2	136.6	18,519	15,407	9,399	30,864	25,679	15,565	120.2	198.3
Hungary . . . .	4,005	3,799	3,925	105.4	102.9	44,424	38,895	47,124	74,038	64,824	78,538	114.2	94.3
Italy . . . . .	12,422	12,238	12,074	101.5	102.9	170,076	139,840	154,812	283,454	233,063	258,014	121.6	109.9
Lithuania . . . .	347	351	221	98.9	157.4	4,209	4,831	2,616	7,015	8,051	4,361	87.1	160.9
*Lithuania . . . .	521	514	500	101.4	104.2	5,756	6,285	5,318	9,593	10,475	8,863	91.6	108.2
Luxembourg . . .	43	40	27	106.9	159.7	605	703	341	1,009	1,171	568	86.1	177.8
Netherlands . . .	9	9	9	99.9	99.6	107	186	177	179	310	296	57.7	60.6
Poland . . . . .	377	366	216	102.9	174.2	9,553	10,825	5,573	15,921	18,042	9,287	88.2	171.4
Portugal . . . .	4,401	4,315	4,108	102.0	107.1	44,062	45,865	43,292	73,435	76,440	72,151	96.1	101.8
Romania . . . .	...	1,344	1,267	...	...	9,540	14,814	9,206	15,900	24,690	15,342	64.4	103.6
Russia . . . . .	8,518	7,610	7,535	111.9	113.1	61,068	45,933	64,853	101,778	76,553	108,086	133.0	94.2
Sweden . . . . .	673	718	690	93.8	97.6	14,088	17,026	13,227	23,479	28,376	22,045	82.7	106.5
Switzerland . . .	211	211	180	100.0	117.3	4,562	4,007	3,380	7,604	6,677	5,633	113.9	135.0
Czechoslovakia .	2,382	2,329	2,086	102.3	114.2	35,640	30,009	32,586	59,399	50,013	54,308	118.8	109.4
Yugoslavia . . . .	...	5,194	5,316	...	...	40,786	40,998	50,898	67,975	68,328	84,828	99.5	80.1
<b>Total Europe . .</b>	<b>\$) 77,821</b>	<b>76,958</b>	<b>74,488</b>	<b>101.1</b>	<b>104.5</b>	<b>910,416</b>	<b>910,908</b>	<b>890,551</b>	<b>1,517,332</b>	<b>1,518,151</b>	<b>1,484,220</b>	<b>99.9</b>	<b>102.2</b>
*U. S. S. R. (w)	31,836	26,660	24,987	119.4	127.4	...	670,428	503,890	...	1,117,358	839,800	...	...
Canada . . . . .	24,116	23,985	25,936	100.5	93.0	174,325	165,509	212,576	290,541	275,849	354,294	105.3	82.0
United States (w)	31,389 (4)	32,968 (4)	37,780	95.2	83.1	259,200	243,600	343,717	432,000	406,000	572,861	106.4	75.4
Mexico . . . . .	20,837 (4)	9,281 (4)	19,841	224.5	105.0	97,800	54,861	126,547	163,000	91,435	210,912	178.3	77.3
...	1,196	1,224	1,258	97.7	95.1	6,367	6,570	7,294	10,611	10,950	12,157	96.9	87.3
<b>Total North Amer.</b>	<b>77,538</b>	<b>67,458</b>	<b>84,815</b>	<b>114.9</b>	<b>91.4</b>	<b>537,692</b>	<b>470,540</b>	<b>690,134</b>	<b>896,152</b>	<b>784,234</b>	<b>1,150,224</b>	<b>114.3</b>	<b>77.9</b>
Chosen . . . . .	...	789	824	...	...	5,375	5,561	5,361	8,957	9,268	8,935	96.6	100.3
India . . . . .	34,485	35,992	32,516	95.8	106.1	217,818	210,874	210,112	363,029	351,456	350,187	103.3	103.7
Japan . . . . .	1,626	1,589	1,280	102.3	127.0	29,453	28,597	20,187	49,087	47,660	33,645	102.0	145.9
*Syria and Leb. .	1,288	1,175	1,170	109.7	110.1	8,724	8,724	8,851	14,540	14,540	14,751	...	...
Turkey . . . . .	5,482	7,625	7,231	71.9	75.8	54,058	59,828	55,900	90,094	99,711	93,165	90.4	96.7
<b>Total Asia . . .</b>	<b>\$) 42,382</b>	<b>45,995</b>	<b>41,851</b>	<b>92.1</b>	<b>101.3</b>	<b>306,704</b>	<b>304,860</b>	<b>291,560</b>	<b>511,167</b>	<b>508,095</b>	<b>485,932</b>	<b>100.6</b>	<b>105.</b>
Nigeria . . . . .	4,077	4,068	3,839	100.2	106.2	19,202	26,117	18,316	32,003	43,528	30,526	73.5	104.8
*Ghana . . . . .	52	22	20	233.3	257.4	...	107	51	...	179	84	...	...
Egypt . . . . .	1,463	1,442	1,595	101.5	91.8	25,933	22,366	26,831	43,221	37,276	44,718	115.9	96.7
Libya . . . . .	11	15	14	75.0	78.9	66	77	32	110	129	54	85.7	203.8
Kenya . . . . .	45	44	48	104.3	94.4	...	360	313	...	601	522	...	...
French Morocco .	3,210	3,018	2,885	106.4	111.3	10,673	23,351	16,767	17,787	38,918	27,944	45.7	63.7
Algeria . . . . .	30	25	22	120.0	133.3	106	139	79	176	231	132	76.2	133.3
Tunisia . . . . .	1,829	1,903	1,952	96.1	93.7	10,362	8,267	7,597	17,269	13,779	12,662	125.3	136.4
<b>Total North Africa</b>	<b>10,620</b>	<b>10,471</b>	<b>10,307</b>	<b>101.4</b>	<b>103.0</b>	<b>66,342</b>	<b>80,317</b>	<b>69,622</b>	<b>110,566</b>	<b>133,861</b>	<b>116,036</b>	<b>82.6</b>	<b>95.3</b>
Argentina . . . .	14,085 (5)	18,812 (5)	19,701	74.9	71.5	...	142,992	136,990	...	238,316	228,312	...	...
...	...	17,199 (4)	17,459	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTALS .</b>	<b>\$) 208,361</b>	<b>200,882</b>	<b>211,461</b>	<b>103.7</b>	<b>98.5</b>	<b>1,821,154</b>	<b>1,766,625</b>	<b>1,941,867</b>	<b>3,035,217</b>	<b>2,944,341</b>	<b>3,236,412</b>	<b>103.1</b>	<b>93.8</b>



## Rye.

COUNTRIES	†) AREA					†) PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935/36	% 1935/36	1935	1934	Average 1929 to 1933	% 1935/36	% 1935/36
	1935/36	1934/35	1929/30 to 1933/34	1934/35	1935/36	1935/36	1934/35	1929/30 to 1933/34	1934/35	1935/36
	1,000 acres					1,000 bushels				
Germany . . . . .	11,199	11,097	11,257	100.9	99.5	166,419	167,720	174,628	297,177	299,501
Austria . . . . .	930	949	940	98.0	99.4	12,930	12,666	12,425	23,090	22,617
Belgium . . . . .	525	525	561	99.5	99.6	10,783	12,444	12,012	19,255	22,222
Bulgaria . . . . .	433	476	570	91.0	75.9	4,350	3,682	7,767	6,576	9,865
Spain . . . . .	1,401	1,451	1,512	96.6	92.7	13,549	12,419	12,565	22,176	22,438
Estonia . . . . .	357	361	358	98.2	99.9	3,542	4,064	4,064	6,503	6,504
Poland . . . . .	613	609	532	100.6	115.2	7,194	8,705	7,194	13,464	15,545
France . . . . .	1,663	1,694	1,776	98.2	93.6	16,279	18,471	18,322	32,984	32,718
Greece . . . . .	185	182	182	101.6	114.1	1,698	1,381	1,105	2,031	2,466
Hungary . . . . .	1,546	1,386	1,590	97.6	97.4	14,977	11,653	16,798	26,745	24,381
Italy . . . . .	270	278	297	97.5	91.1	3,475	3,140	3,652	6,205	5,907
Latvia . . . . .	658	654	608	100.6	108.2	7,754	8,991	6,127	13,466	16,096
Lithuania . . . . .	1,236	1,225	1,194	100.9	103.5	13,562	14,745	12,188	24,219	26,331
Luxemburg . . . . .	19	19	19	96.2	97.5	250	307	258	447	548
Netherlands . . . . .	502	463	445	108.5	112.8	8,188	11,081	8,604	14,621	19,788
Poland . . . . .	14,160	13,934	14,276	101.6	104.2	140,997	142,506	144,863	251,246	254,476
Romania . . . . .	951	912	913	104.4	104.2	8,708	4,653	8,241	15,551	8,308
Sweden . . . . .	557	581	561	95.8	99.3	9,689	11,577	8,927	17,302	20,674
Switzerland . . . . .	35	35	47	100.0	75.0	686	695	686	1,242	1,242
Czechoslovakia . . . . .	2,511	2,475	2,592	101.5	96.9	34,933	33,583	40,275	62,381	59,969
Yugoslavia . . . . .	...	...	631	622	...	4,630	4,305	4,670	8,267	7,688
<b>Total Europe . . . . .</b>	<b>40,383</b>	<b>40,141</b>	<b>40,832</b>	<b>100.6</b>	<b>98.9</b>	<b>484,689</b>	<b>491,800</b>	<b>509,761</b>	<b>865,676</b>	<b>878,219</b>
<b>*U. S. S. R. . . . .</b>	<b>58,519</b>	<b>58,474</b>	<b>64,626</b>	<b>100.1</b>	<b>90.5</b>	...	...	...	...	...
<b>Canada . . . . .</b>	<b>769</b>	<b>735</b>	<b>919</b>	<b>104.6</b>	<b>83.7</b>	<b>7,478</b>	<b>3,037</b>	<b>5,953</b>	<b>13,354</b>	<b>5,423</b>
<b>United States . . . . .</b>	<b>3,699</b>	<b>1,942</b>	<b>3,104</b>	<b>190.5</b>	<b>19.2</b>	<b>29,232</b>	<b>8,982</b>	<b>19,694</b>	<b>52,200</b>	<b>16,040</b>
<b>Total North Amer. . . . .</b>	<b>4,468</b>	<b>2,677</b>	<b>4,023</b>	<b>166.9</b>	<b>111.1</b>	<b>36,710</b>	<b>12,019</b>	<b>25,647</b>	<b>65,554</b>	<b>21,463</b>
<b>Turkey . . . . .</b>	<b>591</b>	<b>602</b>	<b>635</b>	<b>98.1</b>	<b>93.0</b>	<b>6,191</b>	<b>5,370</b>	<b>6,614</b>	<b>11,055</b>	<b>9,590</b>
<b>*Argentina . . . . .</b>	<b>1,606</b>	<b>2,142</b>	<b>1,476</b>	<b>75.0</b>	<b>108.8</b>	...	<b>8,841</b>	<b>4,270</b>	...	...
<b>GRAND TOTALS . . . . .</b>	<b>45,442</b>	<b>45,420</b>	<b>45,990</b>	<b>104.7</b>	<b>99.9</b>	<b>527,590</b>	<b>509,189</b>	<b>536,022</b>	<b>942,125</b>	<b>907,272</b>

See notes on page 670.

## Barley.

COUNTRIES	†) AREA					†) PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935/36	% 1935/36	1935	1934	Average 1929 to 1933	% 1935/36	% 1935/36
	1935/36	1934/35	1929/30 to 1933/34	1934/35	1935/36	1935/36	1934/35	1929/30 to 1933/34	1934/35	1935/36
	1,000 acres					1,000 bushels				
Germany . . . . .	3,966	4,030	3,876	98.4	102.3	73,900	70,634	69,410	151,148	147,156
Austria . . . . .	402	416	416	96.6	96.5	5,986	6,499	6,499	12,470	14,607
Belgium . . . . .	93	93	816	107.3	119.9	2,346	2,346	2,346	4,887	4,887
Denmark . . . . .	525	525	4,626	100.0	99.0	41,024	41,024	50,386	3,998	3,998
Finland . . . . .	4,536	4,357	4,252	100.9	95.5	41,024	41,024	50,386	3,998	3,998
France . . . . .	259	257	257	100.0	95.5	2,370	2,533	2,480	4,939	5,277
Spain . . . . .	1,329	1,325	1,296	101.1	110.3	12,090	4,600	4,600	8,520	8,520
Sweden . . . . .	1,793	1,851	1,796	97.6	92.1	18,366	16,285	17,499	28,897	31,927
Switzerland . . . . .	77	76	76	100.0	99.9	1,468	2,016	1,761	3,038	3,038
Poland . . . . .	544	526	508	103.0	105.5	5,049	4,717	3,755	10,518	8,901
Romania . . . . .	1,181	1,181	1,181	100.0	101.3	14,603	11,992	14,603	26,382	24,983
Italy . . . . .	481	481	546	98.1	88.1	4,491	4,491	4,491	9,336	9,336
Lithuania . . . . .	907	907	493	100.0	102.6	5,317	5,317	5,317	10,001	10,001
Luxemburg . . . . .	6	6	10	99.4	69.1	86	86	86	179	179
Latvia . . . . .	98	98	6	94.6	75.4	3,65	1,14	1,13	136	238
Poland . . . . .	2,884	2,909	3,014	102.6	98.4	31,495	32,025	32,798	65,414	68,719
Romania . . . . .	3,998	4,332	4,720	92.3	84.7	24,471	19,210	43,553	50,983	40,221
Switzerland . . . . .	257	247	301	104.1	84.7	4,453	4,756	5,086	9,988	9,988
Czechoslovakia . . . . .	1,597	1,644	1,739	98.6	91.8	21,816	22,804	28,243	45,451	47,510
Yugoslavia . . . . .	...	1,073	1,096	...	...	8,157	9,038	9,095	16,994	18,829
<b>Total Europe . . . . .</b>	<b>25,979</b>	<b>26,415</b>	<b>27,227</b>	<b>98.4</b>	<b>95.4</b>	<b>300,907</b>	<b>315,396</b>	<b>338,707</b>	<b>626,898</b>	<b>657,085</b>
<b>Canada . . . . .</b>	<b>3,886</b>	<b>3,612</b>	<b>4,538</b>	<b>107.6</b>	<b>85.6</b>	<b>45,384</b>	<b>30,596</b>	<b>43,103</b>	<b>94,550</b>	<b>63,742</b>
<b>United States . . . . .</b>	<b>3</b>	<b>12,557</b>	<b>2,095</b>	<b>121.94</b>	<b>102.6</b>	<b>135,840</b>	<b>56,640</b>	<b>119,079</b>	<b>281,000</b>	<b>118,000</b>
<b>Total North Amer. . . . .</b>	<b>16,893</b>	<b>10,707</b>	<b>16,732</b>	<b>157.3</b>	<b>100.7</b>	<b>181,224</b>	<b>87,236</b>	<b>162,182</b>	<b>377,550</b>	<b>181,742</b>
<b>Turkey . . . . .</b>	...	2,179	2,403	...	...	28,308	22,497	20,455	52,915	38,120
<b>*Argentina . . . . .</b>	<b>1,919</b>	<b>1,860</b>	<b>2,088</b>	<b>101.2</b>	<b>91.9</b>	<b>37,138</b>	<b>35,351</b>	<b>37,138</b>	<b>71,371</b>	<b>68,255</b>
<b>GRAND TOTALS . . . . .</b>	<b>42,872</b>	<b>37,124</b>	<b>43,959</b>	<b>100.0</b>	<b>96.1</b>	<b>526,419</b>	<b>438,728</b>	<b>463,922</b>	<b>1,126,948</b>	<b>840,829</b>

See notes on page 670.

## Oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Average	%	1935	1935	1934	Average	1935	1934	Average	%	1935
	1935/36	1934/35	1929	1935	1935/36	1935/36	1934/35	1929	1935/36	1934/35	1929	1935	1935/36
			to 1933	to 1935/36				to 1933			to 1933		
			1929/30	1934/1935	Aver.			1929/30			1929/30	1934/1935	Aver.
	1,000 acres					1,000 centals				1,000 bushels			
Germany . . . .	6,902	7,773	8,317	88.8	83.0	118,391	120,204	144,830	369,969	375,634	452,591	98.5	81.7
Austria . . . .	742	743	759	99.9	97.7	9,248	10,285	9,155	28,901	32,139	28,610	89.9	101.0
Belgium . . . .	710	726	720	97.8	98.7	14,575	17,781	15,853	45,546	55,566	49,539	82.0	91.9
Bulgaria . . . .	268	312	328	85.9	81.8	2,041	1,610	2,559	6,379	5,032	7,997	126.8	79.8
Spain . . . . .	1,619	1,877	1,917	86.3	84.5	10,991	16,630	15,083	34,348	51,969	47,133	66.1	72.9
Estonia . . . .	341	341	361	100.0	94.4	3,119	3,518	3,163	9,747	10,994	9,885	88.7	98.4
Finland . . . .	1,171	1,173	1,106	99.9	105.9	14,506	17,115	13,720	45,332	53,485	42,875	84.8	105.7
France . . . . .	8,202	8,210	8,444	99.9	97.1	101,596	96,660	108,686	317,484	302,060	339,642	105.1	93.5
Engl. and Wales .	1,416	1,402	1,672	101.0	84.7	24,573	24,998	29,474	76,790	78,120	92,106	98.3	83.4
Scotland . . . .	826	816	862	101.2	95.9	13,928	14,448	15,519	43,524	45,150	48,496	96.4	89.7
*Northern Ireland .	273	280	296	97.5	92.1	...	6,143	6,011	...	19,198	18,783	...	...
Greece . . . . .	358	336	322	106.7	111.2	2,822	2,172	2,012	8,818	6,787	6,289	129.9	140.2
Hungary . . . .	553	552	619	100.1	89.3	4,890	5,718	6,787	15,281	17,869	21,210	85.5	72.0
Italy . . . . .	1,050	1,049	1,182	100.2	88.9	11,372	10,803	13,164	35,537	33,758	41,137	105.3	86.4
Latvia . . . . .	822	742	779	110.8	105.5	9,237	8,567	7,399	28,866	26,770	23,123	107.8	124.8
Lithuania . . . .	824	812	891	101.5	92.5	8,769	8,372	8,612	27,404	26,163	26,911	104.7	101.8
Luxemburg . . . .	67	67	72	100.0	92.7	1,010	1,002	1,012	3,156	3,133	3,164	100.7	99.8
Netherlands . . .	320	323	364	99.1	87.7	5,785	6,337	6,728	18,078	19,803	21,024	91.3	86.0
Poland . . . . .	5) 5,488	5) 5,466	5) 5,424	100.4	...	56,553	56,234	55,927	176,727	175,730	174,770	100.6	101.1
Romania . . . . .	1,947	2,044	2,369	95.3	82.2	14,771	12,418	20,438	46,159	38,806	63,867	118.9	72.3
Sweden . . . . .	1,656	1,628	1,618	101.7	102.4	25,860	27,147	25,007	80,813	84,835	78,146	95.3	104.4
Switzerland . . .	25	25	45	100.0	55.0	460	449	806	1,439	1,404	2,517	102.4	57.1
Czechoslovakia . .	1,921	1,976	2,050	97.5	93.7	22,558	25,992	32,044	70,493	81,224	100,136	86.8	70.4
Yugoslavia . . . .	...	945	955	...	...	6,173	7,351	6,794	19,290	22,972	21,231	84.0	90.9
<b>Total Europe . .</b>	<b>§) 38,173</b>	<b>39,338</b>	<b>41,176</b>	<b>97.0</b>	<b>92.7</b>	<b>483,228</b>	<b>495,811</b>	<b>544,772</b>	<b>1,510,081</b>	<b>1,549,403</b>	<b>1,702,399</b>	<b>97.5</b>	<b>88.7</b>
Canada . . . . .	14,099	13,731	13,051	102.7	108.0	152,761	109,181	117,865	477,378	341,190	368,327	139.9	129.6
United States . .	3) 39,530	4) 30,172	4) 39,201	131.0	100.8	378,240	168,320	352,048	1,182,000	526,000	1,100,151	224.7	107.4
<b>Total North Amer.</b>	<b>53,629</b>	<b>43,903</b>	<b>52,252</b>	<b>122.2</b>	<b>102.6</b>	<b>531,001</b>	<b>277,501</b>	<b>469,913</b>	<b>1,659,378</b>	<b>867,190</b>	<b>1,468,478</b>	<b>191.4</b>	<b>113.0</b>
*Syria and Lebanon	30	32	29	93.7	104.7	...	318	246	...	994	768	...	...
Turkey . . . . .	...	449	390	...	...	5,664	3,501	3,275	17,699	10,939	10,234	161.8	172.9
Algeria . . . . .	438	450	554	97.3	79.0	2,072	3,804	3,710	6,476	11,889	11,594	54.5	55.9
French Morocco .	72	66	83	109.2	86.6	439	606	677	1,371	1,894	2,115	72.4	64.8
*Tunisia . . . . .	74	49	86	150.0	85.9	...	441	666	...	1,378	2,081	...	...
<b>Total Africa . .</b>	<b>510</b>	<b>516</b>	<b>637</b>	<b>98.6</b>	<b>80.2</b>	<b>2,511</b>	<b>4,410</b>	<b>4,387</b>	<b>7,847</b>	<b>13,783</b>	<b>13,709</b>	<b>56.9</b>	<b>57.2</b>
*Argentina . . . .	1) 2,866	5) 3,539	5) 3,672	81.0	78.1	...	21,385	21,071	...	66,827	65,846	...	...
	1) ...	4) 2,397	4) 2,022	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTALS .</b>	<b>§) 92,761</b>	<b>84,206</b>	<b>94,455</b>	<b>110.2</b>	<b>98.2</b>	<b>1,022,404</b>	<b>781,223</b>	<b>1,022,347</b>	<b>3,195,005</b>	<b>2,441,315</b>	<b>3,194,820</b>	<b>130.9</b>	<b>100.0</b>

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern hemisphere.  
 \*) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — i) Including spelt and meslin. — 2) Including spelt. — 3) Area expected to be harvested. — 4) Area harvested. — 5) Area sown. — 6) Average 1930 to 1933. — 7) Barley and meslin.

It suggests fairly clearly, however, that production in Europe this year is nearly the same as that of last year, notwithstanding a slight expansion in the area cultivated.

The total of the crops in the European exporting countries (the four Danubian countries, Poland and Lithuania) exceeds the very low figure of last year by about 35 million bushels. Moreover, total production in the importing countries is about 35 million bushels below the level reached in 1934. Compared with the average of the years 1929 to 1933, however, there is an increase of about 70 million bushels in the total for the importing countries and a decline of about 30 million bushels in that of the exporting countries.

The yield per acre for the whole of Europe (19.6 bushels per acre) is about equal to the average of the yields secured in the ten preceding years, but the expansion in the crop during this period results in 1935, in the largest crop ever harvested in Europe, except in 1933, a very favourable year.

### *Wheat Yields.*

Countries	1935	1934	Period 1929 to 1933		
			Average	Maximum	Minimum
Bushels per acre					
Germany . . . . .	33.0	30.6	32.3	36.0	29.0
Austria . . . . .	25.4	23.2	23.5	26.9	21.3
Belgium . . . . .	35.7	43.6	37.0	40.4	32.3
Bulgaria . . . . .	17.5	13.5	17.2	21.0	12.5
Spain . . . . .	13.5	15.8	13.7	16.4	11.9
Estonia . . . . .	16.7	19.3	16.5	18.1	15.3
Finland . . . . .	24.1	20.3	25.3	26.9	22.2
France . . . . .	21.1	25.3	23.0	26.8	17.2
Great Britain . . . . .	33.5	37.3	33.0	36.0	30.0
Greece . . . . .	15.2	13.1	10.6	16.7	7.0
Hungary . . . . .	18.4	17.1	20.1	24.5	17.0
Italy . . . . .	22.7	19.0	21.4	23.8	17.7
Latvia . . . . .	20.2	22.9	19.8	22.7	15.8
Lithuania . . . . .	18.4	20.4	17.7	21.9	16.4
Luxemburg . . . . .	23.8	29.4	21.3	29.6	13.4
Netherlands . . . . .	42.2	49.2	43.0	48.6	35.1
Poland . . . . .	16.7	17.7	17.5	20.2	11.6
Romania . . . . .	11.9	9.2	14.3	17.2	7.9
Sweden . . . . .	34.9	39.6	32.0	36.6	25.0
Switzerland . . . . .	35.4	30.8	30.9	35.2	26.9
Czechoslovakia . . . . .	25.0	21.4	26.0	32.1	20.1

An examination of the yields expected in the various countries shows that the most favourable results were secured in Germany, Austria, Greece, Italy and Switzerland. The yields in these countries are larger than any of those of the six preceding years with the exception of 1933. Most of the countries of Northern Europe (Great Britain, Sweden, and probably also Denmark, Norway, Estonia,

Lithuania and Luxemburg) also showed yields above the average of 1929-33 but smaller than the exceptional figures recorded in 1934. Of this group of countries only Belgium, the Netherlands and Finland, failed to secure the average yield. The weather conditions experienced in the Danubian exporting countries, though not as unfavourable as those of 1934, prevented yields from reaching the average level except in Bulgaria. The situation in Czechoslovakia was similar, where results were better than those of last year but below average. Finally, France, Poland, Spain and probably Portugal, experienced yields which were not only smaller than the good results of last year but also below the average.

The available data for Russia seem to confirm that the wheat harvest, as well as that of the other cereals, is plentiful.

The most recent estimates of the spring wheat crops of North America, as was foreseen, give smaller figures than the previous figures based on conditions on 1 August. The total winter and spring wheat production of Canada and the United States, which in July were expected to amount to about 1,110 million bushels, will only reach about 885 million bushels according to the most recent evaluations. This total is still about 110 million bushels greater than the extremely poor results of last year but remains about 250 million bushels below the average of 1929 to 1933. It should be added that an unusually high proportion of the North American wheat crop, owing to the damage caused by bad weather, is not of merchantable quality and this reduces still further the quantity available for milling. Mexican production is smaller than that of 1934 and smaller still than the average.

Total production in Asia (excluding China, Manchuria and Iran) is nearly equal to last year's crops and 5 % greater than the average. In China, according to unofficial information, wheat production will be about 20 % smaller than the good outturn of 1934.

Finally, North African crops are very much below those of 1934 and fail to reach the average, owing, chiefly to the very light yields obtained in Morocco.

To sum up, the data available for 1935 and the probable estimates for a smaller number of countries which have not yet issued figures, indicate that total production in the northern hemisphere (excluding China, Manchuria, Iran, and the U. S. S. R.) is about 3,080 million bushels.

*Wheat Production in the Northern Hemisphere (1)*

(in millions of bushels)

Years	Europe	North America	Asia (2)	North Africa	Total (1)
1935 (*)	1,540	896	533	111	3,080
1934	1,536	784	529	134	2,983
1933	1,747	823	522	110	3,202
1932	1,492	1,198	463	127	3,280
1931	1,436	1,271	514	116	3,337
1930	1,360	1,319	551	105	3,335
1929	1,450	1,135	485	124	3,194
Average 1929-1933	1,497	1,150	507	116	3,270

(\*) Provisional estimate. — (1) Excluding the U. S. S. R., China, Manchuria and Iran. —

(2) Excluding China, Manchuria and Iran.

Although it is necessary to repeat that the figures are provisional and subject to change, the total production of the countries under consideration will clearly exceed the very low outturn of 1934 only by a small amount and will in any case remain appreciably smaller than those obtained in each of the five preceding years.

As regards the wheat-growing countries of the southern hemisphere, the information issued in the middle of September by the Australian Government indicates that an appreciable improvement has occurred in the prospects of the wheat crop as a result of the rains which have benefited all the growing areas. In Argentina, the first official estimate confirms that sowings are appreciably reduced this year as a result of the drought which prevailed during the period of ploughing and sowing. In the case of wheat, this decrease compared with last year amounts to a quarter. This, together with the precarious situation of the crops in a large part of the country, indicates that the harvest will be very small. Thus, even if it is assumed that Australian production will exceed that of last year, it is hardly probable that the total crop of the southern hemisphere can reach even the comparatively modest level of 1934.

European rye production in 1935 is nearly the same as that of last year but below the average. In North America, on the other hand, the crop was very plentiful, compared not only with the low output of 1934 but also with that of the preceding five years. The total production of the northern hemisphere, including also Turkey but excluding the U. S. S. R., is larger than that of last year and only slightly below the average.

*Rye Production in the Northern Hemisphere (1).*

(in millions of bushels)

Years	Europe	North America	Total (1) (2)
1935 . . . . .	878	66	956
1934 . . . . .	893	21	921
1933 . . . . .	1,003	25	1,039
1932 . . . . .	933	49	988
1931 . . . . .	776	38	831
1930 . . . . .	925	69	1,004
1929 . . . . .	941	48	1,000
<i>Average 1929-1933</i> . . . . .	<i>916</i>	<i>46</i>	<i>972</i>

(\*) Provisional estimate. — (1) Excluding the crop of the U. S. S. R. — (2) Including the crop of Turkey.

The European barley production was distinctly poor and the smallest obtained in the last 7 years, chiefly owing to the unsatisfactory results recorded in Romania, Spain and Czechoslovakia. A similar outcome was experienced in North Africa, where it was due to the very considerable decline in the Moroccan

crop. In North America a good production was secured, nearly twice as large as the poor crop of 1934 and exceeding the average of the five years 1929 to 1933. The total for the three Asiatic countries which have issued estimates (Chosen, Japan and Turkey) is average. The total outturn of the northern hemisphere, excluding the U.S.S.R., India and certain other Asiatic countries, is about 9 % above the poor crop of 1934 and 5 % below the average production of the five years 1929 to 1933.

*Barley Production in the Northern Hemisphere (1).*

(in millions of bushels).

Years	Europe	North America	Asia (2)	North Africa	Total (1)
1935 (*) . . . . .	675	380	190	88	1,333
1934 . . . . .	707	184	196	132	1,219
1933 . . . . .	776	222	180	106	1,293
1932 . . . . .	778	386	179	109	1,452
1931 . . . . .	697	260	193	106	1,265
1930 . . . . .	760	441	184	93	1,487
1929 . . . . .	835	385	198	115	1,533
<i>Average 1929-1933</i> . . . . .	<i>771</i>	<i>340</i>	<i>189</i>	<i>105</i>	<i>1,405</i>

(\*) Provisional estimate. — (1) Excluding the U. S. S. R., British India and some other Asiatic countries. — (2) Chosen, Japan and Turkey only.

European oat production in 1935 is practically equal to that of 1934 but about 10 % smaller than the 1929-33 average. The latter result is principally the outcome of the decline in the area sown to barley which gradually fell from 45,500,000 acres in 1929 and from an average of 43,700,000 acres in the years 1929 to 1933 to about 40,500,000 acres in 1935. North America obtained an excellent crop, ranking as one of the largest of the last seven years. It is nearly twice as large as the poor crop of 1934 and exceeds the 1929-33 average by 13 %. Production in the northern hemisphere, excluding the U. S. S. R., is 30 % larger than that of last year and closely approaches the average, notwithstanding the decline in the cultivated area in Europe.

*Oat production in the Northern Hemisphere (1).*

(in millions of bushels)

Years	Europe	North America	Total (1) (2)
1935 (*) . . . . .	1,674	1,659	3,375
1934 . . . . .	1,681	867	2,590
1933 . . . . .	1,939	1,058	3,038
1932 . . . . .	1,851	1,662	3,545
1931 . . . . .	1,658	1,476	3,175
1930 . . . . .	1,714	1,725	3,490
1929 . . . . .	2,060	1,418	3,525
<i>Average 1929-1933</i> . . . . .	<i>1,844</i>	<i>1,468</i>	<i>3,355</i>

(\*) Provisional estimate. — (1) Excluding the U. S. S. R. — (2) Including the Asiatic and North African crops.

*Germany:* According to a recent estimate, the spelt area harvested this year is about 180,000 acres against 257,000 in 1934 and 288,000 on the average of the five years ending 1933; percentages 70.3 and 62.7. The corresponding production is estimated at about 2,593,000 centals against 3,163,000 and 3,252,000; percentages 82.0 and 79.7. The respective figures for meslin are as follows: area: 1,280,000; 970,000 and 902,000 acres percentages 132.0 and 141.8; production: 20,918,000 centals (36 million bushels); 14,898,000 centals (26 million bushels) and 14,151,000 centals (24 million bushels). Percentages: 140.4 and 147.8.

*Austria:* Weather during August was rather dry and temperature rather high.

Bringing in of cereals was finished in nearly all parts by the end of August. By this time autumn preparations and even the sowing of winter cereals had begun in some places.

In mountainous areas the grain of the winter wheat crop was badly formed as a result of the drought. Winter rye, however, is rather satisfactory in quality. Spring barley is also satisfactory except in too permeable soils. Oat yields are very variable. Oats suffered particularly in the districts north of the Danube, where the straw is exceptionally short.

*Belgium* During August there was a period of warm and dry weather broken by inadequate rains. Harvesting of cereals was carried out in excellent conditions. Yields are as follows wheat 18-27 centals per acre (30-45 bushels); barley 18-27 (37-56) rye 18-25 (32-45), oats 13-27 (42-84).

Straw is short everywhere owing to the drought.

*Bulgaria:* After a period of dry weather, good rains fell in the last decade of August in all parts of the country. Harvesting and threshing of cereals had been finished everywhere except in some mountainous districts.

According to the most recent estimate, area cultivated to spelt this year is about 26,100 acres against 24,300 in 1934 and 27,100 on the average of the five years ending 1933; percentages 107.5 and 96.5. The corresponding production is estimated at about 243,300 centals against 155,500 and 250,600; percentages 156.5 and 97.1.

The area cultivated to meslin this year is about 183,000 acres against 212,000 in 1934 and 242,000 on the average of the five years ending 1933; percentages 86.4 and 75.5. The corresponding production is estimated at about 1,704,000 centals 2,938,000 bushels, against 1,875,000 (3,233,000) and 2,569,000 (4,429,000); percentages 90.9 and 66.3

*Denmark:* Crop condition of cereals on 1 September was as follows wheat, 100 (against 99 on 1 August this year and 97 on 1 September 1934), rye 95 (94.95); barley, 104 (101.89); oats, 103 (101.88).

*Estonia:* During August there were frequent rains which impeded the cereal harvest. Weather conditions were, however, favourable to the growth of spring cereals.

According to the most recent estimate, area cultivated to meslin this year was about 200,500 acres against 190,000 in 1934 and 175,300 on the average of the five years ending 1933; percentages: 105.4 and 114.4. The corresponding production is estimated at about 2,105,300 centals (3,630,000 bushels) against 2,284,300 (3,938,400) and 1,718,500 (2,963,000); percentages 92.2 and 122.5.

*Irish Free State:* The weather during August was almost continuously dry and warm. Rain fell on only a few days. Conditions were generally ideal for harvesting, which was carried out satisfactorily. The harvest was much earlier than usual. No damage to crops is reported and the quality is satisfactory.

The wheat crop is about 70 % larger than last year and the oat crop about 6 %. While the acreage of barley is down by about 5 % the yield is slightly up.

*France:* Harvesting was finally completed during August in the late areas. It was slightly impeded by the light rains which were experienced at this time.

If we take the estimate of about 165 million centals (276 million bushels) corresponding to the most optimistic previous forecasts, reduced to 157 million centals (261 million bushels) after the unmillable proportion is deducted, and account is taken of the carryover of 29 million centals (48 million bushels) on 1 August, State stocks of 13 million centals (22 million bushels), and the North African contribution of 7 million centals (11 million bushels), making a total figure of supplies of 205 million centals (342 million bushels) to meet total requirements, including consumption, seed, etc., amounting to 181 million centals (301 million bushels), the carryover at the end of the year 1935-36 would be 24 million centals (40 million bushels) or nearly the normal figure of the years preceding the crisis. There is, in any case, a steady, if not a large, rise in the wheat market.

The rye crop is mediocre and about 12 % smaller than that of last year. Oats and barley show uneven results.

Threshing is proceeding slowly in the north. The weather which prevailed between the middle of August and the middle of September was in most areas very favourable to field work which is going forward rapidly.

According to the preliminary estimate, area cultivated to meslin this year was about 181,200 acres against 183,800 in 1934 and 197,700 on the average of the five years ending 1933; percentages 98.5 and 91.6. The corresponding production is estimated at about 1,961,000 centals (3,381,100 bushels) against 1,808,000 (3,117,000) and 2,172,000 (3,745,000); percentages 108.5 and 90.3.

*Great Britain and Northern Ireland:* The weather, which was warm and dry in all parts during the first three weeks of August, was ideal for harvesting, but, in Scotland, such weather, following the dry conditions prevailing during July, was not ideal for crops, causing, in some cases, too early ripening. Rain fell in all districts during the last week of the month and cooler conditions prevailed.

The cereal harvest, which in some areas commenced towards the end of July, became general in England and Wales early in August and was practically completed by the end of the month. Wheat was cut in ideal weather and, though the grain is small in many areas, the condition and quality of the crop are good. The quality and condition of the barley crop are fairly good but reports from many districts state that owing to the dry weather, the straw is short and the grain is « steely ». Oats have been harvested in good condition and the quality is generally good, though spring sown oats in some districts are reported to be light in the grain.

The yield of wheat in England and Wales is forecast at 33.0 bushels (19.8 centals) per acre, which equals the average yield of the ten years 1925-34, but which is 4.1 bushels (2.5 centals) per acre below the yield obtained last year. The yield of barley is expected to be 36.4 bushels (17.5 centals) per acre, which is about 1.4 bushels (0.7 cental) below the average and 3.0 bushels (1.5 centals) less than the yield in 1934.



Oats are expected to yield 54.2 bushels (17.4 centals) to the acre, which is 1.4 bushels (0.4 cental) less than last year and 0.7 bushel (0.2 cental) less than the average for the previous ten years.

*Hungary:* During the three weeks between 19 August and 10 September weather was characterized by very variable temperatures by frequent rains, and, in most parts of the country, by a more than normal quantity of rainfall.

Bringing in and threshing of cereals were completed by the latter date.

Field work for winter sowings was going forward. Here and there sowing of winter rye and barley had begun.

*Italy:* The quality of the crop this year may be considered, with some exceptions, good and, in Continental Italy, very good. In Sicily, on the other hand, the crop is thought to be good or fair and, in Sardinia, mediocre and good, but in most cases, fair.

The condition of the soil impeded preparations for sowing of cereals during the first half of August but in the second half rains fell and this work made good progress.

*Latvia:* The period of wet weather which began in July continued in August. During the latter month rainfall in some districts was excessive.

Harvesting of cereals was greatly delayed by the wet.

According to the most recent estimate, area cultivated to meslin this year is about 174,200 acres against 177,400 in 1934 and 153,900 on the average of the five years ending 1933, percentages 98.2 and 113.2

*Lithuania:* Temperatures were very low during August. Warm and sunny days were not experienced before 15 August. Rains were frequent. These conditions were not favourable for the wheat harvest. A considerable part of the winter wheat crop is too damp. Harvesting of spring cereals proceeded in more favourable conditions. At the end of August only an insignificant proportion of the cereal crops was still standing.

According to the most recent estimate, area cultivated to meslin this year is about 242,200 acres against 244,200 in 1934 and 218,200 on the average of the five years ending 1933, percentages 99.2 and 111.0. The corresponding production is estimated at about 2,875,000 centals (4,957,000 bushels) against 2,651,100 (4,570,900) and 2,415,200 (4,164,200); percentages 108.4 and 119.0.

*Luxemburg.* The fine weather of August assisted the gathering in of the cereal crops. Harvesting is a little advanced compared with normal years.

*Norway.* Condition of cereals on 1 September was as follows winter wheat, 95 (against 94 on 1 August this year and 99 on 1 September 1934); spring wheat, 105 (104.98); winter rye 94 (96.91); spring rye 96 (99.94); barley, 100 (101.99); oats 98 (98.97) and meslin, 104 (105.95).

*Netherlands:* Though temperature was almost normal up to the second decade of August, rainfall was below average. Cereals, on the whole, ripened too quickly. Unit yields of winter wheat show wide variation but, on the whole, they may be considered normal. The grain is small but dry and its specific weight is good. There are some

cases of take-all. The yield of spring wheat, grown chiefly in the north, is not as good as that of winter wheat.

Rye was affected by the drought and the grain is small. The crop in fenland colonies gave better results. The yield of winter barley varied from average to good, that of spring barley was satisfactory in the south but small in the north.

Oat production varies from good to very good, particularly on clayey soils and in fenland colonies, but the yield was not as good on sandy soils, where crops were unable to withstand the drought.

*Poland:* During the second half of August weather was variable. It was at first cool but became warmer at the end of the month. The nights of this period were generally cold.

Frequent and sometimes stormy rains fell nearly everywhere. Harvesting of spring wheat was still in progress in the north-east and in some districts in the east. In the Wilno area frequent rains impeded the wheat harvest.

Rye sowings began in Poznan on 20 August.

During the second decade of September warm and rather wet weather continued almost everywhere. By the beginning of September the harvesting of spring cereals was concluded also in the north-eastern and central areas of the country. The grain of the harvested crop showed signs of sprouting as a result of the excessive moisture. According to the estimates made by the Meteorological Institute during the period considered, yields will be as follows: spring wheat, good in the Lwów district, above average in the Warsaw and Pomorze areas; spring barley, good in the north-eastern and Lublin areas, above average in the Łódź and Stanisławów areas; average in other areas; oats, good in the north-eastern, Lublin and Kraków areas, average or above average in nearly all other parts, poor in the Poznan district.

Sowings of winter rye and wheat are proceeding nearly everywhere. They are hindered in the Poznan and Warsaw areas owing to the drought and in several of the north-east and central areas by the excessive wet.

*Romania:* More plentiful rains were recorded between 20 and 24 August. Afterwards rains were sporadic and light. The rains received in the areas affected by the drought were inadequate and failed to improve the situation appreciably.

Threshing of cereals was still continuing at the beginning of September in the areas where the harvest is usually late. The results confirm the expectations previously formed.

The rains which fell on 10 September facilitated field work. There was unfortunately, no rain in the areas which have suffered from drought. Preparatory work began early this year and on 15 September it was going forward on a large scale.

*Sweden:* In August temperatures rose everywhere except in some northern and central districts. Rainfall was less than normal.

The fine weather was favourable for the harvesting of winter cereals while spring cereals suffered from the drought.

The quality of cereals is generally excellent

According to the most recent estimate, area cultivated to meslin this year is about 622,300 acres against 591,700 in 1934 and 625,200 on the average of the five years ending 1933; percentages 105.2 and 99.5. The corresponding production is estimated at about 11,816,800 centals (20,374,000 bushels) against 12,178,800 (20,998,000) and 11,416,800 (19,684,400); percentages 97.0 and 103.5.

*Switzerland:* August was characterized by variable temperatures, sometimes rather low, and by frequent rains. The rains were of benefit to the crops enabling them to recover from the earlier period of drought.

Harvesting, which is now finished, was carried out in very good conditions. Operations were impeded by rain only in the higher districts. In general, the results of the cereal harvest are good and, in parts, very good. Threshing results indicate that the late frosts in the case of rye and early ripening in the case of other cereals have affected the growth of grain and the estimates made of the yields cannot be fulfilled everywhere.

*Czechoslovakia:* The last two months, especially August, were too hot and dry. The cereal crops, which, as a result of the hot and dry weather, ripened quickly and generally prematurely, were harvested without difficulty and earlier than usual. The reports indicate that in several areas, especially those which were most affected by drought, the yield of grain will be appreciably smaller than what was expected at the end of June.

The reports indicate that the results of the wheat threshing vary considerably from district to district, for soil conditions as well as weather cause variations. On the whole, the reports suggest that the cereal harvest will be smaller than that anticipated at the time of the previous enquiry. The harvest was disappointing in quality. Reports from several regions state that grain is small and dry and contains a large proportion of grain which will be rejected. There is, however, a good straw crop.

Wheat was the best of the crops and oats the least satisfactory. The drought was felt most in the province of Bohemia.

Work on the land hitherto has been rendered difficult owing to the hardness of the soil. More plentiful rains are urgently needed to facilitate autumn work.

According to the most recent estimate, the area cultivated to meslin this year is about 14,400 acres against 16,900 in 1932 and 20,400 on the average of the five years ending 1933; percentages 85.1 and 70.6

*Yugoslavia:* After a long period of drought, weather turned wet and cool in August especially at the beginning and during the last decade of the month.

The rains, however, came too late and could not improve the situation of the cereal crops, production of which is rather poor

Among the districts affected by the drought are Bachka and Banat (the principal producing area) but more considerable loss was caused in Dalmatia where yields are 50 % below those of last year.

*U. S. S. R.:* Harvesting of cereals is nearly complete. The area cropped up to 10 September in the whole Union was 195.7 million acres, or 94 % of the Plan, against 183.4 million acres up to 10 September 1934.

Up to the same date the crop from 125.8 million acres had been threshed, or 64 % of the Plan against 119.4 millions (65 %) last year. Harvesting is late everywhere, particularly in the east. Simultaneously, the sowing of winter cereals and ploughing of land intended for spring cereals in 1936 is proceeding. On 10 September, in the Union as a whole, 59.1 million acres had been sown, or 63 % of the Plan, compared with 57.8 million acres sown in the same period last year (62 %). With the exception of the Moscow and Kalininsk regions, no region had completed its sowings though, according to the Plan, all central and eastern regions (including Siberia) were to have finished sowings.

Ploughing of land intended for spring cereals in 1936 had also failed to make satisfactory progress. On 10 September the area worked was 9.4 million acres against 10.4 million acres last year but the Plan of this work, which is appreciably greater than last year (146.0 million acres against 104.0 million acres), requires a more rapid pace.

During the last week of August, plentiful rains fell in the central areas of the country and at the end of the month they extended over the southern areas which had been affected by the drought in August. The rains continued into the first week of December and impeded harvesting of oats and caused germination of the wheat which was still standing. They were favourable, however, to the seeding of winter cereals.

Unofficial information indicates that the cereal crops this year are good and, in Ukrania, exceed the plentiful yield of 1933.

On 10 September the Plan providing for the deliveries of cereals to the State had reached an advanced point. The southern regions, which were late last year, accomplished the programme in advance of the given date.

*Argentina:* The latest report of the Department of Rural Economy and Statistics of the Ministry of Agriculture at Buenos Aires, published on 22 August, gives the following information on the course of the wheat crop in Argentina.

The rains which fell in the first and second decades of August, after a long and intense drought which had lasted for months, made it possible to proceed with spring wheat sowings in all parts of the country. Nevertheless, an appreciable decrease in the wheat area is expected. Except in the Province of Buenos Aires, where crop condition is satisfactory, the position is below normal. In Santa Fé the rains which fell in the first decade of August resulted in the greening of the fields sown to wheat and in an improvement in the condition of the soil facilitating sowings which are practically finished except in a few cases. The area sown to wheat, however, is estimated to be smaller by 30 to 45 % compared with last year, larger areas being devoted to flax and maize. Crop condition in the northern and central parts of the province is not satisfactory, germination being irregular. In the south, the crop benefited from the recent rains, and growth, stimulated by the increased soil moisture and the higher temperatures, made good progress. In the Province of Córdoba only the eastern part was benefited by rains; in the remainder of the province the drought continued unbroken except for some local showers of little effect. A substantial reduction in the wheat area in the province as a whole was anticipated. Germination was irregular and growth was late. Rains in Entre Ríos were too late and too slight to bring about an appreciable improvement in the wheat crop which covers a smaller area this year than last. Germination was unsatisfactory and the condition of growth in the province as a whole varied from mediocre to bad.

Rain was badly needed in the Province of Santiago del Estero. The area sown to wheat is smaller than that of last year and the loss of sowings resulting from frost and drought is estimated at 25 % of the total. In the National Territory of Pampa, the rains received in the middle of August were of assistance to the wheat crop which had suffered severely from prolonged drought, frost and winds. The situation, moreover, remains serious, germination being uneven and growth slow.

In the Province of San Luis the crop was in a critical position, a high percentage of the area having been destroyed by the drought.

(Telegram of 26 September): Wheat in a considerable part of the country is backward in growth owing to the drought and absence of warmth, which have caused serious damage to sowings. Fairly low outturns of this crop are expected and it is at present in urgent need of rains in all parts.

*Chili:* The most recent estimates of the production of cereals in Chili in 1934-35 with those of last year and the averages of the preceding five years are set out below.

	1934-35	1933-34	Average 1928-29/ 1932-33	% 1934-35 1933-34 = 100	% 1934-35 Average = 100
	(000 centals)				
Wheat . . . . .	18,078	21,185	16,120	85.3	112.1
Barley . . . . .	1,826	3,227	2,403	56.6	76.0
Oats . . . . .	1,511	2,522	2,217	59.9	68.2
	(000 bushels)				
Wheat . . . . .	30,129	35,307	26,865	85.3	112.1
Barley . . . . .	3,803	6,723	5,006	56.6	76.0
Oats . . . . .	4,723	7,881	6,928	59.9	68.2

*United States:* Excellent progress had been made with threshing by the middle of September in the North-west, except in parts of Minnesota. The soil was in good condition for ploughing and seeding in the Centre and South-west, but in the Pacific North-west the weather has been too dry.

(Telegram of 25 September) Very little ploughing had been accomplished in the Northern States and seeding was delayed in the Northern, Central and Western Sections owing to the hardness of the soil and the drought.

*Japan:* Weather during August was favourable to the cereal crops.

*Syria and Lebanon:* Production of cereals was plentiful on the whole in Syria. In Lebanon, on the other hand, production was affected by rust on the coast and by scorching in the plains. Wheat production in Latakia is considered poor but that of barley and oats is good. In Jebel ed Drüz, the wheat and barley crops, the only cereals cultivated, are plentiful and distinctly above average.

*Algeria:* Threshing of the European crop was nearly finished by the middle of August and that of the native crop was also in progress. The fine dry weather which prevailed almost throughout the month assisted this work.

The threshing results in a reduction of 730,000 centals (1,210,000 bushels) in the estimate of the wheat crop in the *départements* of Alger and Oran; the results in the *département* of Constantine are as yet unknown. The estimate made in July before threshing in the last area brings the total to a figure within 40,000 bushels of the average outturn of 1929-1933.

*French Morocco:* Threshing on native lands continued during August. Clearing of fields and preparatory work was proceeding on European holdings. Drought persisted throughout the month.

*Tunisia:* The weather during August was favourable for threshing, the results of which confirm last month's expectation of a fairly good crop of soft wheat, a smaller than average crop of hard wheat and a good crop of barley. In general, however, they prove to be rather better than the forecasts.

Farmers are engaged in preparatory work, manuring and clearing of stubble in the northern and central districts. In the former of these areas, fields are in some cases infested by weeds.

*Australia* (Telegram of 17 September): Weather was favourable to the wheat crop in Western Australia and crop condition had improved; rust, however, was reported in the northern area. In South Australia crop condition was good. In New South Wales rainfall, which was insufficient last month, was nearly general this month and crop condition was satisfactory. In Victoria the weather was generally favourable to wheat and crop condition was satisfactory.

## MAIZE

*Austria*: The maize crop again benefited substantially where moisture was adequate. In Eastern Styria black rust is reported to have appeared again.

*Bulgaria*: Owing to the drought of the first two decades of August maize began to ripen too soon. The good rains of the last decade, however, were favourable for growth. The first forecasts indicate that this year's crop will be plentiful and of very good quality.

### Maize.

COUNTRIES	AREA					CROP CONDITION †)								
	1935	1934	Average 1929 to 1933	% 1935		I-V-1935			I-VIII-1935			I-IX 1934		
				1934	Aver									
				= 100	= 100									
1,000 acres														
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria . . . . .	...	160	151	...	...	2.9	—	—	2.8	—	—	2.3	—	—
Bulgaria . . . . .	1,673	1,658	1,796	100.9	93.1	—	—	—	—	—	—	—	—	—
France 1) . . . . .	786	846	808	92.9	97.3	—	—	—	—	—	—	—	—	—
Hungary . . . . .	2,879	2,777	2,764	103.7	104.2	—	—	—	—	—	—	—	—	—
Italy . . . . . 2)	3,269	3,305	3,332	98.9	98.1	—	—	—	—	—	—	—	—	—
Italy . . . . . 3)	366	385	291	95.0	125.7	—	—	—	—	—	—	—	—	—
Romania . . . . .	12,761	12,368	11,653	103.2	109.5	—	—	—	—	—	—	—	—	—
Switzerland . . . . .	2	2	3	100.0	79.1	110	—	—	—	—	—	—	—	—
Czechoslovakia 4) . .	192	222	—	86.6	—	—	—	—	—	—	—	—	—	—
Canada . . . . .	158	161	142	98.1	111.0	—	—	94	—	—	96	—	—	80
United States . . . . .	93,590	87,795	103,353	106.6	90.6	—	—	—	—	—	75.1	—	—	43.5
Algeria . . . . .	15	16	23	93.2	66.0	—	f)	—	—	—	—	—	—	—
Eritrea . . . . .	25	28	24	88.5	102.0	—	—	—	—	—	—	—	—	—
Kenya 7) . . . . .	126	123	174	102.4	72.3	—	—	—	—	—	—	—	—	—
French Morocco . . .	996	986	771	101.0	129.1	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 665 —

1) Area estimated on 1 June. — 2) Spring crop (maggelgo) — 3) Summer crop (cinquantino) — 4) Pure crop. — 5) Area expected to be harvested — 6) Area harvested — 7) Cultivation by Europeans

*France*: The good, widespread rains of the end of August and the beginning of September very appreciably improved the condition of maize and a fairly satisfactory production was expected in the middle of September.

*Hungary*: Harvesting of early maize had begun on 10 September. Late varieties were ripening. Crop condition improved in some places after the rains. The rain, unfortunately, arrived too late in most provinces and, as a result of the drought, stalks

are short and thin while the ears are small and poorly developed. In some places on sandy soils maize was a complete failure and has been cut for fodder.

*Italy:* The maize crop, which had previously been held up by lack of moisture, suffered further damage from the persistent drought during the summer.

The first harvest results suggest that there will be appreciable decreases compared with last year varying on the average from 25 to 35 %.

*Portugal:* The irrigated maize crop ripened in good conditions and a good harvest is expected. The non-irrigated crop, however, was hampered by lack of moisture, but production will not greatly differ from last year's which was good.

*Romania:* Yields of maize are very uneven this year. The crop has failed completely in South Bessarabia and in the area between the Svet and the Prat from the towns of Roman and Tasi as far as the confluence of the two rivers, in the old Dobruja and in two provinces of Transylvania. In some provinces, however, yields, are exceptionally high.

The production given in the table is a provisional official estimate calculated from crop condition on 15 september.

*Yugoslavia:* The changeable and rather wet weather of August effected an appreciable improvement in the maize crop which had suffered during the summer drought.

According to the first forecasts, a good yield is expected in the chief producing areas (Banat, Bachka, Srem, etc.) but production will be rather poor in Bosnia, Serbia and Dalmatia.

*Argentina* (Telegram of 26 September) Conditions for maize sowings are mediocre.

*Chile:* According to the most recent estimate, the area cultivated to maize in 1934-1935 is about 114,700 acres against 118,100 in 1933-34 and 114,000 on the average of the five years ending 1932-33, percentages 97.1 and 99.9.

*United States:* According to a telegram of 25 September, weather during the preceding week was dry and warmer than normal, thus favouring harvesting and promoting the rapid ripening of maize.

*Indo-China:* The crop appeared good in July in Indo-China as a whole.

In Cambodia the crop was helped by rains and the harvest promised to be at least equal to last year's which was a very high record. In Cochin-China the year ended in July. The yield on high lands in some districts was very satisfactory. The area cultivated in the province of Chandoc, which supplies most of the maize in Cochin-China was 18,500 hectares, indicating a substantial contraction in the maize crop of the country. In Annam harvesting had been completed in some places of North Annam and appeared very satisfactory in some districts but mediocre in others. In Central Annam, the crops looked well on the whole. In South Annam, the crop, which was harvested in June, was mediocre owing to the lack of rain during the period of growth. New sowings were made in July. In Tonkin, harvesting was completed in July and yielded very good results in some areas. Second sowings were put in the ground in some places and grew satisfactorily.

### Production of Maize.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934 = 100	Average = 100
	Thousand centals			Thousand bushels				
Hungary . . . . .	30,675	46,256	39,508	54,777	82,600	70,550	66.3	77.6
Romania . . . . .	105,822	106,840	121,329	188,969	190,786	216,659	99.0	87.2
Czechoslovakia 1) .	2,606	3,539	—	4,653	6,319	—	73.6	—
United States . .	1,223,040	771,120	1,394,160	2,184,000	1,377,000	2,489,572	158.6	87.7
Turkey . . . . .	10,338	7,108	10,120	18,460	12,692	18,072	145.4	102.1
Eritrea . . . . .	132	194	206	236	346	368	68.2	64.2
French Morocco .	2,793	5,425	3,021	4,988	9,688	5,395	51.5	92.4

1) Crop grown alone

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning maize area.

	1935	1934
	acres	
Area harvested in July . . . . .	364,700	345,000
Area harvested from 1 January to 31 July .	3,510,900	2,800,000
Area planted up to end of July . . . . .	1,207,100	1,174,300

*French West Africa:* Sowings of maize and millet were carried out in good conditions in Dahomey. Rainfall was plentiful in the north but slight in the south during the first quarter of the year. Rainfall in Guinea was very slight. The 1934 maize crop was small in Senegal, amounting to barely 194,000 centals (346,000 bushels). Inspection of the grain, however, showed that quality was satisfactory.

*Egypt:* During this month the *nili* maize crop was completely sown in all the provinces with the exception of Gorga and Asuan provinces where late sowing is still in progress. Flowering is general in the early sown area and certain general cultivations in the South of the Delta. Cob formation started in a few cultivations. The crop is normal. Thinning, hoeing, manuring and watering are in progress.

*Kenya:* In July prospects for the new maize were not good.

*French Morocco:* Harvesting of maize was proceeding on native holdings at the end of August. The drought continued throughout the month with periods of scirocco and *chergui*. Yields are not satisfactory except in the Fez and Meknes areas and there are considerable attacks of *Sesamia* even in the north.

*Tanganyika:* In July prospects for the maize crop in the Moshi and Tanga districts were good.

*Union of South Africa:* Farmers in many districts were still busy with reaping and threshing operations. The crops in the Orange Free State and Western Transvaal



proved very disappointing. Good yields were expected, however, in the eastern highveld areas of the Transvaal. A few swarms of locusts were reported but they did not do much damage except in one or two districts.

According to the most recent estimate, production of maize in 1934-35 is about 35,240,000 centals (62,920,000 bushels against 47,802,000 (85,361,000) in 1933-34 and 33,784,000 (60,328,000) on the average of the five years ending 1932-33; percentages 73.7 and 104.3.

## RICE

*Italy:* Except during the period immediately following the sowings, when heavy rains and low temperatures hindered the first stages of growth, the year was generally favourable to the rice crop which is now in good condition. In some areas the situation is extremely good. Production is expected to be 16,500,000 centals (36,700,000 bushels) against 13,700,000 centals (30,400,000 bushels) in 1934 and an average of 14,800,000 centals (32,800,000 bushels) in the five years 1929 to 1933. Percentages: 121.6 and 112.5.

*United States:* A report of the Department of Agriculture based on crop condition on 1 September estimates the rice production of this year at 38,700,000 bushels (17,400,000 centals) against 38,296,000 bushels (17,233,000 centals) in 1934. During the five years 1929 to 1933 an average production of 41,742,000 bushels (18,784,000 centals) was obtained. Percentages: 101.1 and 92.7.

*Taiwan:* Transplanting of second crop rice is fairly well completed. Growing conditions are average.

*India:* According to a report of 31 August, rain had been heavy in the Deccan and fairly good elsewhere. The transplanting and sowing of paddy was proceeding.

Rainfall was general in Bihar and Orissa and heavy in Bhagalpur and Purnea. There was some flood damage.

In Bengal the transplanting of winter paddy was advanced and the harvesting of autumn paddy was progressing favourably.

*Indo-China:* Conditions in July were, on the whole, favourable to rice growing.

In Tonkin, work on the tenth month rice crop was pushed forward rapidly and transplanting was finished at the end on July. In Annam the heavy rains of July made it possible to resume and to complete transplanting of tenth month crop in the north, growth was good. As a result of the rains, the growth of first-sown rice, in the central, and northern parts of Annam and of eighth month rice in Central and South Annam was good at the end of July. Tenth and twelfth month rice, sown in June and at the beginning of July, grew fairly evenly and third month rice gave satisfactory yields. Work proceeded normally in Cochin-China. Replanting of early rice was finished in the west. Sowings of mid-season and main crop rice began at the end of the month in some places. Standing rice third month crop, flooded rice and new sowings were very satisfactory in appearance. In Cambodia regular and plentiful rains provided excellent conditions for sowing and replanting. The Mekong, however, rose too rapidly for flooded rice which in some cases was submerged.

*Japan:* Crop condition of rice on 1 September 1935 was considered average.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning rice area:—

*Area harvested in July:*

	1935	1934
	acres	
Wet padi . . . . .	597,300	710,200
Dry padi . . . . .	7,700	5,900

*Area harvested 1 January to 31 July:*

Wet padi . . . . .	6,844,700	6,683,800
Dry padi . . . . .	938,800	945,200

*Area planted up to end of July:*

Wet padi . . . . .	1,586,400	1,540,700
Dry padi . . . . .	17,300	25,000

*British Malaya:* Shortage of water in July delayed operations in many areas. In Krian the majority of nurseries made satisfactory progress and water supply was fairly well maintained in north-west Krian. Some nurseries sown in early June in Perak North and to be resown. In Perak South planting was well forward in and around Tanjong, Malim and Sidor, but it was late in Batang, Padang, and in Chenderiang. Clearing and planting of nurseries was progressing in Kinta and in certain areas of Lower Perak. The position in the Sungei Manik area was not very satisfactory owing to deficiencies in water supply. Also in Pahang there was shortage of water but no serious damage was reported. Work was late in the coastal areas of Malacca and in Johore. A considerable area of padi land was abandoned in the Tangkak District, but it was reported that there would probably be an increase in the planted area in Johore Central. Some damage from leaf-eating insects and stem borers was reported in parts of the Segamat district.

*French West Africa:* Attempts to improve the rice crop in the Sudan are being made with satisfactory results. White Sudanese rice finds an outlet on coastal markets, notably at Dakar, where it is gradually taking the place of imported rice.

*Egypt.* The growth of the summer (*sefi*) rice crop is satisfactory. The ears appear in increasing numbers in early and some general cultivations. The grain is forming in early cultivations in Lower Egypt. The crop is in a good condition.

The operations carried out are watering and drainage, weeding, resowing, and manuring in late and some general cultivations.

Sowing of *mili* (flood) rice crop is over in all areas allotted to the crop. Germination and growth are satisfactory. Irrigation, drainage, and weeding are going on.

## POTATOES

*Germany:* Dry winds prevailed during August and rainfall was inadequate for hoed crops, particularly potatoes. The crop condition of potatoes on 1 September was not as good as it was a month before.

*Austria:* Crop condition of potatoes shows much variation. There is an almost general lack of moisture. Yields of early crops were below average and tubers were generally small. The foliage of main crop potatoes remained fresh during the drought and it is believed that the rains of the middle of August will improve the prospects of the crop.

*Potatoes.*

COUNTRIES	AREA					CROP CONDITION †)								
	1935	1934	Average 1929 to 1933	% 1935										
				1934 = 100	Aver. = 100	I-IX-1935			I-VIII-1935			I-IX-1934		
						a)	b)	c)	a)	b)	c)	a)	b)	c)
1,000 acres														
Germany. . . . .	358	585	599	61.1	59.7	—	—	—	—	—	3.1	—	—	—
*Austria . . . . .	...	6,598	6,434	...	...	2.9	—	3.1	2.9	—	—	2.9	—	—
Belgium . . . . .	402	393	418	102.4	96.3	—	—	—	2.9	—	—	—	2.3	—
Bulgaria . . . . .	39	37	32	105.0	121.4	—	—	—	—	—	—	—	—	—
*Denmark . . . . .	...	189	169	...	...	—	—	86	—	—	96	—	—	—
Estonia . . . . .	182	177	165	102.5	110.5	—	—	96	—	—	91	—	—	—
Finland . . . . .	210	206	185	102.0	113.7	—	—	—	—	—	—	e) f)	—	—
France . . . . .	3,472	3,449	3,505	100.7	99.1	—	—	—	—	—	—	—	—	—
England and Wales . . . . .	463	488	483	95.0	95.9	—	—	—	—	—	—	—	—	—
Scotland . . . . .	132	140	139	94.3	94.7	—	—	—	—	—	100	—	—	—
Northern Ireland . . . . .	129	137	141	94.0	91.7	—	—	—	—	—	—	—	—	—
Hungary . . . . .	749	717	707	104.5	105.9	—	—	—	—	—	—	—	—	—
Italy . . . . .	1,002	1,001	953	100.2	105.2	—	—	—	—	—	—	—	—	—
Latvia . . . . .	306	266	237	115.0	128.8	—	—	—	—	—	—	—	—	—
Lithuania . . . . .	461	452	398	102.0	115.9	—	—	—	—	—	—	—	—	—
Luxemburg . . . . .	41	40	41	100.6	98.9	—	—	3.3	—	—	3.4	—	—	3.2
Malta . . . . .	8	7	7	116.1	110.4	—	—	—	—	—	—	—	—	—
*Norway . . . . .	...	120	118	...	...	—	—	87	—	—	98	—	—	93
Netherlands . . . . .	345	356	414	97.0	83.4	—	—	190	—	—	93	—	—	65
*Poland . . . . .	...	6,825	6,662	...	...	1) 3.2	—	—	1) 3.3	—	—	1) 3.5	—	—
Romania . . . . .	512	505	483	101.2	105.8	—	—	—	—	—	—	—	—	—
*Sweden . . . . .	...	325	335	...	...	—	—	2.8	—	1) 3.0	—	3.1	—	—
Switzerland . . . . .	112	112	115	100.0	97.5	—	—	91	—	—	—	105	—	—
Czechoslovakia <sup>(s)</sup> <sub>(t)</sub> . . . . .	99	97	87	102.1	114.1	—	—	3.6	—	—	—	—	—	3.1
Canada . . . . .	525	569	551	92.2	95.2	—	—	88	—	—	95	—	—	85
United States . . . . .	3,256	3,312	3,188	98.3	102.1	—	—	—	80.7	—	—	—	—	—
*Syria and Lebanon . . . . .	...	18	18	...	...	—	—	—	105	—	—	—	—	—
Algeria . . . . .	16	14	26	115.2	62.8	—	—	—	—	—	—	—	—	—
Eritrea . . . . .	21	23	25	90.8	82.9	—	—	—	—	—	—	—	—	—
...	1	2)	1	120.0	114.3	—	—	—	—	—	—	—	—	—
TOTAL . . . . .	14,591	14,836	14,601	98.3	99.9	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals tables and note on page 665.  
— 1) At the middle of the preceding month. — 2) Area under 500 acres — s) Early potatoe. — t) Late potatoes.

*Belgium:* Yields will not be good. The first liftings yielded 100 to 220 centals per acre (180 to 370 bushels).

*Estonia:* The weather during August was marked by frequent rains which assisted the growth of potatoes.

*France:* The general and heavy rains which fell at the end of August and the beginning of September improved the situation of the potato crops. Yields appear to be

good or average in the north, east and west, but in the important area in the Centre and in the south it is confirmed that they are mediocre. Recent mildew attacks are reported.

*Great Britain and Northern Ireland:* The weather, which was warm and dry during the first three weeks of August was ideal for harvesting operations, but root crops suffered from the drought. Rain fell in all districts during the last week of August and the crops benefited thereby, but in Scotland the rain came too late to increase bulk, many fields being too ripe to benefit.

Reports indicate that the main potato crop in England and Wales is free from disease. The haulms withered early owing to the dry hot weather and while tubers are plentiful they are small in size. The yield is expected to be 209 bushels (125 centals) per acre.

*Production of potatoes.*

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934	Average
	Thousand centals			Thousand bushels			= 100	= 100
Belgium . . . .	61,001	70,077	81,905	101,667	116,793	136,505	87.0	74.5
Estonia . . . .	18,154	19,668	18,530	30,256	32,779	30,883	92.3	98.0
Finland . . . .	25,640	25,119	21,586	42,732	41,865	35,976	102.1	118.8
England and Wales	58,079	77,034	69,758	96,798	128,389	116,263	75.4	83.3
Hungary . . . .	30,192	46,709	39,112	50,320	77,848	65,185	64.6	77.2
Latvia . . . .	32,786	31,875	26,273	54,642	53,123	43,787	102.9	124.8
Luxembourg . . .	3,146	4,308	4,431	5,243	7,180	7,385	73.0	71.0
Malta . . . .	392	539	597	654	899	994	72.7	65.8
Netherlands . . .	54,675	64,820	73,447	91,123	108,031	122,409	84.3	74.4
Poland . . . .	647,870	737,899	669,965	1,079,762	1,229,807	1,116,587	87.8	96.7
Switzerland . . .	14,551	18,629	15,894	24,250	31,048	26,489	78.1	91.5
Czechoslovakia s)	4,436	6,705	6,989	7,393	11,174	11,648	66.2	63.5
United States . .	223,800	231,172	205,370	373,000	385,287	342,283	96.8	109.0
Algeria s) . . . .	812	851	970	1,354	1,418	1,617	95.5	83.7
Eritrea . . . .	6	4	5	9	7	9	125.0	102.5

s) Early potatoes.

*Hungary:* Lifting of early potatoes was still in progress on 10 September. The main crop improved somewhat after the rain but tubers are few and small.

*Italy:* Owing to the unfavourable conditions of the year, potato production is stated to be below average.

*Lithuania:* The wet weather of August was favourable in the main to the potato crops. In some places, the quantity of moisture was too plentiful.

*Luxemburg:* The potato crop, which was already affected by the July drought, did not improve in condition owing to the persistence of the dry weather throughout August.

*Netherlands:* Potatoes for human consumption, crop condition of which was already unsatisfactory, suffered much from the drought, particularly, on light soils. Early varieties were not as good as the late crops.

The crop condition of potatoes for starch is better, though some types including Thorbeck among others, suffered from shrivelling of leaves. The Eigenheimer variety suffered from drought in higher areas. Tubers are small.

*Poland:* Weather was rather cold and wet during the first half of August and warmer in the second half. It was not on the whole, favourable to the development of potatoes. Recent information suggests a rather mediocre production. There is a better outlook only in some areas of the south-east and central parts of the country.

In Greater Poland the long drought has seriously affected yields. In many areas *Phytophthora infestans* has appeared on leaves.

*Romania:* A normal crop was expected according to the report of 15 September.

*Sweden:* Potatoes suffered from drought during August.

*Switzerland:* Rainfall was especially beneficial to the hoeld crops. Though, owing to the drought, early potatoes are rather small, the later varieties improved appreciably after the good rains. The tubers of the later varieties began to grow again after being held up by the drought and it is thought that the crop prospects are better.

*Czechoslovakia:* Potatoes were seriously affected by drought and crop condition was consequently poor. The later crops may yet recover with rain, at least in the higher districts where growth is not finished.

*Argentina:* The area sown to potatoes in 1934-35 is estimated at 425,900 acres, against 382,400 acres in 1933-34 and an average of 395,000 acres in the five years 1928-29 1932-33. Percentages: 111.4 and 107.8. Notwithstanding the increased area under this crop this year, production, owing to the drought, is estimated to be 15.6 % below that of 1933-34 and 14.4 % below the average. These figures are respectively 28,504,000 bushels (17,103,000 centals) 33,778,000 bushels (20,267,000 centals) and 33,287,000 bushels (19,973,000 centals) respectively.

*Chile:* According to the most recent estimate, the area cultivated to potatoes in 1934-35 is about 138,200 acres against 132,600 in 1933-34 and 113,800 on the average of the five years ending 1932-33; percentages 104.3 and 121.5.

## SUGAR.

The general condition of the sugar-beet crops in most parts of the beet-growing countries of Europe in the middle of August was anything but satisfactory owing to the long drought and the accompanying great heat which hindered the normal growth of the plants and, in some areas, held up growth completely. Fortunately, however, in the second half of August and subsequently in the first half of September, the beet-crops benefited greatly from the rains which eventually fell. The roots began to develop once more and foliage took on a fresh appearance.

## 1935-36 Campaign — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1935	1934	1929 1933	1935	1934	1929 1933	1935	1934	1929 1933	1935	1934	1929 1933
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.

## 4th WEEK OF AUGUST.

Germany . . . . .	12.4	13.5	12.8	14.4	13.2	17.0	15.8	16.8	15.5	1.9	2.2	1.9
Denmark . . . . .	12.3	8.3	1) 9.4	10.9	10.9	1) 13.2	17.2	13.3	1) 13.9	2.1	1.1	1) 1.2
France . . . . .	9.7	12.2	12.9	10.2	13.2	2) 17.0	15.7	16.1	14.7	1.6	2.0	1.9
Czechoslovakia . . . . .	9.4	11.6	13.8	9.4	10.4	14.5	17.7	16.8	15.6	1.7	2.0	2.2

## 5th WEEK OF AUGUST.

Belgium . . . . .	14.0	—	3) 16.5	16.2	—	3) 23.5	15.3	—	3) 14.9	2.2	—	3) 2.4
Finland . . . . .	10.2	14.8	4) 12.6	18.4	20.9	4) 21.9	12.8	13.2	4) 12.1	1.3	2.0	4) 1.5
France . . . . .	12.1	13.5	5) 12.9	12.5	14.2	5) 17.7	15.7	15.2	5) 16.9	1.9	2.0	5) 2.2
Netherlands . . . . .	19.0	—	—	—	—	—	16.4	—	—	3.1	—	—
Czechoslovakia . . . . .	10.5	12.6	6) 14.9	9.7	10.8	6) 14.3	18.2	16.6	6) 16.3	1.9	2.1	6) 2.4

## 1st WEEK OF SEPTEMBER.

Germany . . . . .	13.7	15.3	15.1	13.8	14.4	16.6	16.3	15.4	16.5	2.2	2.4	2.5
Denmark . . . . .	14.4	10.1	1) 13.5	11.6	13.3	1) 13.5	16.0	12.8	1) 16.0	2.3	1.3	1) 2.2
Finland . . . . .	12.1	16.6	13.7	19.4	21.7	22.6	12.9	14.3	13.2	1.6	2.4	1.8
France . . . . .	12.7	16.5	14.7	12.6	13.4	18.4	14.9	17.3	16.0	1.9	2.9	2.3
Czechoslovakia . . . . .	11.4	14.4	15.7	10.0	11.5	13.3	18.0	15.6	17.0	2.0	2.3	2.7

## 2nd WEEK OF SEPTEMBER.

Germany . . . . .	15.5	16.7	16.4	15.4	15.9	16.2	15.7	15.6	17.1	2.4	2.6	2.8
Belgium . . . . .	17.9	18.2	7) 19.7	19.3	15.7	7) 24.2	15.0	17.6	7) 15.7	2.7	3.2	7) 2.9
Denmark . . . . .	16.2	10.8	15.3	11.5	15.1	13.7	15.5	12.7	16.4	2.5	1.4	2.5
Finland . . . . .	13.9	17.0	16.0	21.6	21.3	25.0	13.4	15.5	14.0	1.9	2.7	2.3
France . . . . .	14.7	17.0	16.0	13.8	13.8	17.5	15.1	17.3	16.5	2.2	2.9	2.6
Netherlands . . . . .	24.1	—	5) 24.0	—	—	—	15.6	—	5) 17.0	3.8	—	5) 4.1
Czechoslovakia . . . . .	12.5	14.8	16.5	9.6	11.1	12.8	18.0	16.1	17.7	2.3	2.4	2.9

## 3rd WEEK OF SEPTEMBER.

Germany . . . . .	17.8	17.3	6) 18.1	16.4	14.1	6) 16.7	16.7	16.2	6) 17.2	3.0	2.8	6) 3.1
Denmark . . . . .	17.4	10.9	1) 15.6	12.0	14.4	1) 13.0	15.8	13.0	1) 17.5	2.8	1.4	1) 2.7
Finland . . . . .	13.4	19.2	16.8	19.5	22.5	24.6	14.3	16.1	15.5	1.9	3.1	2.6
France . . . . .	16.2	17.0	17.4	15.7	12.6	17.2	15.8	18.3	17.1	2.5	3.1	2.9
Czechoslovakia . . . . .	12.9	10.8	2) 12.7	9.4	10.5	2) 15.5	18.5	16.1	2) 15.5	2.4	1.7	2) 2.0

1) Average 1929 to 1931 and 1933. — 2) Average 1929 and 1931 to 1933. — 3) Average 1929, 1932 and 1933. — 4) Average 1929 to 1932. — 5) Average 1929 and 1930 — 6) Average 1930 to 1933 — 7) Average 1932 and 1933.

These conditions were experienced in many areas in Germany. In Upper Silesia the rains of the first half of September were beneficial but, apparently, not sufficient to neutralize the damage caused by the preceding drought. Rains were received also in Lower Silesia but it was not then possible to gauge the extent of the improvement.

In Saxony rain brought about a recovery in growth, particularly in the north of Halle, and it is now hoped to obtain a unit yield equal to that of last year

There was an improvement in Brunswick after the rains, more particularly in the Hildesheim district. A slight improvement was noted in Hannover in the middle of September but more rain was urgently required. In Pomerania, where, in the middle of August crop condition was already better than it was elsewhere, the rains received subsequently were sufficient to bring about a decisive improvement; in fact drier and warmer weather was desirable in the middle of September. In Brandenburg the rains were sufficient for the needs of vegetation. A fair extent of insect damage was notified in various districts of Germany.

There was a distinct improvement also in France, especially in the Somme area, but growth of roots and leaves was better also in Seine-et-Marne. Crop condition of the beets was also satisfactory in the north.

There was a general improvement in the appearance of the crop in Great Britain but conditions show much variation.

In Czechoslovakia September opened with high temperatures but later rains fell more or less evenly in all parts bringing some relief, though not very substantial, in Bohemia. In several districts of Moravia wet weather was fairly favourable to the beets. In Slovakia, however, the rains over the greater part of the beet area were inadequate.

### *Sugar-beet.*

COUNTRIES	CROP CONDITION †)								
	1st September, 1935			1st August, 1935			1st September, 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany . . . . .	—	—	3,1	2,7	—	—	—	3,0	—
Austria . . . . .	—	—	3,1	2,8	—	—	2,4	—	—
Denmark . . . . .	—	—	99	102	—	—	—	—	—
Netherlands . . . . .	—	—	1) 64	—	—	1) 68	1) 73	—	—
Poland . . . . .	—	1) 3,0	—	1) 3,3	—	—	1) 3,3	—	—
Sweden . . . . .	3,1	—	—	1) 3,1	—	—	3,3	—	—
Switzerland . . . . .	102	—	—	—	—	—	—	—	—
Czechoslovakia . . . . .	—	—	3,3	—	—	—	—	—	3,3
Canada . . . . .	—	—	95	101	—	—	—	—	83

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 665  
 — 1) At middle of the preceding month

Among the more important sugar-beet producing countries of Europe, Poland was alone in showing only an insignificant improvement after the September rains; the preceding drought had been severe and growth was very slow. In the remaining and less important growing countries, condition of beets in the middle of September was better than it was a month earlier, while in some countries, including Denmark and Belgium, the improvement was very noticeable.

Very heavy rains fell in the U. S. S. R. at the end of August and the beginning of September effecting a good improvement in the sugar beet crops which previously were showing the effects of the long drought.

In the United States and Canada, though the prospects are not as good as they were a month earlier, conditions are satisfactory.

*Production of Sugar-beet.*

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1935	
	1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	1934 = 100	Average = 100
	Thousand centals			Thousand short tons			%	
Belgium . . . .	34,827	35,428	35,949	1,741	1,771	1,797	98.3	96.9
Hungary . . . .	15,399	20,332	25,695	770	1,017	1,285	75.7	59.9
Netherlands . . .	28,550	39,370	38,399	1,427	1,968	1,920	72.5	74.4
United-States . .	168,600	149,620	178,068	8,430	7,481	8,903	112.7	94.7

Though no estimate of probable sugar production in 1935-36 is made at present, it may be said, having regard to the fact that the beet area this year is smaller than last, that sowings were late, that the crop suffered greatly from drought and that the recent rains, though very beneficial, were insufficient to offset all the loss caused by drought during the growing stage, that the sugar production of Europe, excluding Russia, will be smaller this year than last.

Official forecasts for the U. S. S. R. are very optimistic. If they are fulfilled, Soviet production, given the increase in the beet area, may be plentiful enough to offset the decrease from last year's figure for all other European countries.

Beet production in the United States is officially estimated to be 12.7 % greater than that of 1934.

E. R.

*Austria:* The amount of rainfall was not sufficient for a satisfactory development of the beet crop. The sugar content of the beets is already fairly high.

*France:* The good rains which were received at the end of August and the beginning of September considerably improved the condition of sugar-beet which by the middle of September had become satisfactory again. Moisture reserves, however, are still not quite satisfactory.

*Great Britain and Northern Ireland:* The warm and dry weather of the first three weeks of August was not favourable to root crops but they benefited subsequently when rain fell. The sugar-beet crop in England and Wales is generally healthy in appearance but roots are small in some districts. The crop improved considerably after the recent rains and the yield promises to be nearly up to average. The crop condition of sugar-beet in Scotland on 1 September was good.

*Hungary:* On 10 September, sugar-beet was growing well after the rain. Foliage is on the whole fresh. An increase in yields was again expected.

*Italy:* The sugar-beet crop is expected to be smaller in bulk than that of last year which was 2,920,000 sh. tons but as the sugar content will be higher, the production



of sugar this year, it is estimated, will be equal to that of last year when slightly more than 30,000 short tons were obtained.

*Lithuania:* The wet weather of August was favourable to the sugar-beet crop.

*Netherlands:* The crop condition of sugar-beet was not quite satisfactory. The crop on clayey soil was better.

*Poland:* According to the most recent estimate, the area cultivated to sugar beet this year is about 291,600 acres against 276,800 in 1934 in 389,300 on the average of the five years ending 1933; percentages 105.3 and 74.9.

*Yugoslavia:* The condition of beets improved appreciably after the good rains of August.

It is anticipated that this year's yield will not be below that of preceding years.

*U. S. S. R.:* The frequent rains of the end of August and the beginning of September were very favourable to the sugar-beet crops. According to the Soviet Press, this year the crop is expected to be very abundant and considerably larger than those of recent years. According to the Plan, 335 million centals (17 million short tons) were to be harvested from an area of 3,015,000 acres.

About 5,000 more lifters will be introduced during the present harvest. The beets had matured completely by the beginning of September and it was forecast that the yield would be very high and might reach from 170 centals (6 short tons) to 180 centals (9 short tons) per acre and even 70 centals (13 short tons) in some places.

Lifting of beets began in some parts of the beet growing region at the end of August.

*British Guiana.* Weather conditions having been continuously favourable, a good autumn sugar crop was for anticipated in July.

*Haiti:* Sugar exports in July amounted to 3,100 centals (154 short tons) against 1,100 centals (55 short tons) in July 1934, an increase of 198.6 %. Total exports for the period October-July amounted to 716,300 centals (35,810 short tons), or 46.1 % more than the 490,500 centals (24,530 short tons) exported during the first ten months of the preceding year.

*Taiwan:* Growing conditions of the cane planted from last summer to this spring are average.

*Indo-China:* Growth was satisfactory in Tonkin at the end of July. Some early cutting had been done. In Annam it was normal on the river banks in the north. In the central parts of Annam the crop recovered after the rains.

*Java and Madura (Aneta):* The monsoon on the north coast continued during the second half of August. The transition to the west monsoon characterised weather in other districts. Rainfall was limited to some slight showers. New and old plantations are in good condition but in some places the shortage of irrigation water has affected young canes. Cockchafer larvae and rats have caused some damage.

(Telegram of 20 September): The drought continued during the first half of September. Only 5 out of 189 observation stations report rainfall of a few millimetres. The east monsoon continues. Cane is in good condition but the drought has had serious consequences in some localities, particularly in the east of Java.

*Egypt:* Growth of the sugar cane crop is proceeding satisfactorily and so is the formation of the canes in the early and the general cultivations. Part of the areas of the early crop are being cut for local consumption in some provinces of Lower Egypt. The crop is normal.

*Mauritius:* Weather conditions in July were favourable for the standing crop. Reaping of the canes and the manufacture of sugar had already begun. Yields per acre and the sucrose content were stated to be satisfactory. According to the most recent estimate, sugar production in 1935-36 is expected to reach about 5,842,000 centals (292,100 short tons) as compared with 3,943,000 (197,200) in 1934-35 and 4,990,000 (249,500) on the average 1929-30 to 1933-34. Percentages. 148.2 and 117.

*Union of South Africa:* The July sugar cane crop conditions averaged 8 % below normal. Dry weather prevailed, favouring the ripening of the cane.

According to the most recent estimate, production of sugar this year is about 8,400,000 centals (430,000 short tons) against 7,175,000 (358,700) in 1934-35 and 7,071,000 (323,600) on the average of the five years ending 1933-34. percentages 117.1 and 118.8.

## VINES

By the end of August all cryptogamic attacks appeared to have been stemmed in the vineyards which had been previously affected. Mildew and oidium were recorded in only a few countries, including Algeria and Morocco.

The drought continued up to the beginning of September. In the viticultural countries of Western Europe and in North Africa it has resulted in a decline in yields and quality in the affected regions. The fairly general rains which followed helped vines to ripen in normal conditions in most areas. Serious damage, however, was done by heavy rain and hail in some parts of France and Spain and the effect of this on the total production of these two countries, though not very substantial, will not be insignificant.

The weather during August was generally favourable, and in some instances very favourable, to growth and to gathering of grapes in the viticultural countries of Central and Southeastern Europe, in most of which an improvement was noted in crop condition compared with what it had been a month before.

In the main, the forecasts made last month for Italy, Spain and Portugal remain practically unchanged. The first crop results in France and North Africa, however, indicate that it will be necessary to amend those made for these two countries.

The total production of the four viticultural countries of Western Europe — France, Italy, Spain and Portugal — is at present expected to be over the average of the last five years and also the average of the ten years 1924-34. It is to be noticed that the weather conditions though unfavourable in some vineyards,

were good or very good in others and, on the whole, rather above average, but there is a decline in the productivity of Italian and Spanish vines, which are comparatively old and which have been replaced slowly or which, especially in Spain, have been affected by the spread of phylloxera. This factor, together with the fact that French and Portuguese vines are comparatively young, is

### Vines.

COUNTRIES	AREA					CROP CONDITION †)								
	1935	1934	Average 1929 to 1933	% 1935		1-IX-1935			1-VIII-1935			1-IX-1934		
				1934 = 100	Aver = 100									
						1,000 acres								
											a)	b)	c)	a)
Germany s) . . .	...	180	177	...	...	2.1	—	—	2.1	—	—	1.7	—	—
Austria s) . . .	...	67	71	...	...	1.7	—	—	1.8	—	—	2.1	—	—
Bulgaria. . . . .	225	225	203	99.9	110.9	—	—	—	—	—	—	—	—	—
France s) 1) . . .	3,999	4,008	3,986	99.8	103.3	—	—	—	—	—	—	—	—	—
Luxemburg . . . .	3	3	3	100.0	85.5	2.7	—	—	2.6	—	—	3.3	—	—
Switzerland . . .	33	33	32	100.0	102.9	116	—	—	—	—	—	112	—	—
Czechoslovakia . .	89	52	46	171.1	194.6	—	—	—	—	—	—	—	—	—
—														
Syria and Lebanon	...	127	123	...	...	...	...	...	—	100	—	105	—	—
—														
Algeria s) . . . .	965	955	759	101.0	127.2	—	f)	—	—	f)	—	—	—	—

†) For the explanation of signs and figures crop conditions, see cereals table and notes on page 665 —  
1) Area, bearing -- 1) Estimate on 1st. June, including vines which are pulled-up in the year (166,000 acres in 1934, 272,000 acres in 1933, 198,000 acres in 1932).

causing a change in the balance of production between these four countries. This tendency is clearly shown in the steady decline of the quinquennial averages of Italian and Spanish production and in the increase in those of Portugal and, more recently, of France.

The total output of the four principal European exporting countries — Spain, Portugal, Greece and Italy — provided no unforeseen change occurs before the end of the vintage, will be undoubtedly larger than that of last year, which was poor, and probably larger than the average of the five previous years. It may be placed at about 1,500 million Imperial gallons (1,800 American gallons).

The total production of France, Algeria and Tunisia seems to be 20 to 25 % smaller than the unusually large output of last year, but between 110 and 220 (130 and 360) million gallons larger than the quinquennial and decennial averages. The output would thus be approximately 1,760 (2,110) million gallons or slightly less.

Crop prospects are uneven in Danubian Europe, very good in Romania, good in Bulgaria, average in Yugoslavia and rather mediocre in Hungary. The total production of this group, if no unexpected change occurs, will not reach last year's figure but it may be equal to the average of the years 1929 to 1933.

In Central Europe, while crop prospects in Germany render it impossible to anticipate for all five countries — Germany, Austria, Switzerland, Czechoslovakia

and Luxemburg - a total equal to last year's, present conditions of the vineyards suggest a crop larger by from one fifth to one third than the average.

The United States will apparently have a production of wine nearly equivalent to that obtained last year and the total production of the northern hemisphere, excluding Russia, seems to be normal and in the neighbourhood of those of 1932, 1931, 1929, 1928, 1924, 1923 and 1922 which were between 3,610 and 3,780 (4,330 and 4,540) million gallons. Production this year would thus be 440 to 660 (530-800) million gallons smaller than last year, when the crop was exceptionally large, but it will clearly be larger than the average of the preceding five years and that of the preceding ten years.

P. V.

\* \* \*

*Austria:* Ripening of grapes was already well advanced by the beginning of September. Table grapes were being gathered in Burgenland and in the viticultural area of the southern railway. After the rains which were received in the middle of August, grapes grew more satisfactorily. The yield of grapes is exceptionally good. Vintage prospects are very good promising both in quantity and quality.

*Bulgaria:* Weather conditions in August were generally favourable for the growth of vines, crop condition of which at the end of the month was good. The vintage is good this year.

*Spain:* The beginning of August was characterized in the north central areas by heavy rain and hail. In the main the month was rather dry and hot and the vineyards on the east coast, especially in Catalonia, were adversely affected. On the whole, ripening took place in a normal way. No spreading was reported of cryptogamic disease which appeared, in fact, to have been stemmed at the end of August. The prospects at the beginning of September were what they were a month earlier, or perhaps not quite as good on the east coast. The yield will thus be about average.

*France:* Heavy rains were experienced in the middle of August in all parts of the south, dissipating the serious anxiety caused by the long drought. The drought, however, has had serious consequences in Lower Languedoc and Roussillon but on quality rather than quantity. Ripening has been seriously retarded. Following a period of fine weather, there were heavy storms accompanied by hail. Damage was rather serious in some vineyards, particularly in those of St. Émilion in the Bordelais district.

Gathering of grapes began in the south in the first week of September, in some cases, before ripening was complete owing to fears of rot. Except for some rain the work, up to the middle of September, was carried out in fine weather and good conditions.

The estimates generally made for the four large producing *départements* of the south indicate that the crop will be very good and hardly smaller than that of last year when a record for this area was obtained. Even if these expectations are too optimistic, production in these four *départements* may well prove to be one of the best obtained in post-war years. It should be noted that many vines planted in recent years are only now reaching full production. The present situation in the other viticultural regions of France as a whole indicates that the crop will definitely be at least one third smaller than the outturn of last year, which was exceptionally high, but it will be substantial and probably larger than the average of the five years 1929 to 1933, which was slightly below 570 million Imperial (690 million American) gallons,

and undoubtedly larger than the 10-year average of 1924-33 and perhaps in the vicinity of the comparatively high average of the five post-war years 1919-1923.

The total production of France, according to present expectations, would appear to be about 1,320 million Imperial (1,590 American) gallons, or slightly less, no account being taken of the quantity which is normally omitted from the statistics of direct supplies.

Quality seems good on the whole, except in vineyards where ripening was uneven.

*Hungary:* The rains of the three weeks ended 10 September were generally helpful to vines. The cold weather of the end of this period delayed the ripening of grapes.

*Italy:* The weather continued dry and hot up to the beginning of September in most districts but heavy rains then fell everywhere in the northern and central parts of the country. In the south they were more irregular and the drought continued in a number of districts.

The situation in the middle of September was as follows. In Piedmont, Lombardy, Venetia and Emilia crop condition was good and the crop promised to be plentiful. Production is expected to be a little below that of a normal year and distinctly larger than the average of the five years 1929 to 1933. In the central part of the country, especially in Tuscany, the condition is fairly good on the whole, but vines on hillsides, especially on heavy soils, are still feeling the effects of the drought and the yield will be smaller. The yield here also will be a little above normal and above the average of the previous five years. In the south, Apulia and Sicily, the drought continues in several viticultural areas and the issue still depends on the coming of rain in the second half of September. Prospects were fairly good in the middle of the month and the first vintage results were, on the whole, satisfactory.

As a result of the persistence of the drought, the situation in some southern districts was not quite as good, on the whole, in the middle of September as it was in the middle of August, but, in the main, crop prospects remain that they were a month ago. A practically normal crop is still expected and one approaching the average of the five years 1928 to 1932 which was a little more than 4.5 million short tons.

*Luxemburg:* The dry and sunny weather of August was a favourable influence on the quality of grapes.

*Portugal:* Weather during the flowering period was wet and too cold. Later there were complaints of drought and intense heat. These factors and serious attacks of *Oidium peronospora* gravely affected the crop and production, except in some districts, is expected to be much below that of last year.

*Romania:* Crop condition of vines in the middle of September was very satisfactory. Damage by hail and cryptogamic disease was negligible. Wine production will be plentiful and, if weather continues warm, quality will also be satisfactory though inferior to the unusually good vintage of last year.

*Switzerland:* Vines give promise of an exceptionally plentiful crop. 22 million Imperial gallons (26 million American gallons) are expected this year against 18,700,000 (22,500,000) in 1934 and an average of 10,000,000 (13,100,000) gallons in the five years 1929 to 1933. Percentages. 117.6 and 202.4.

*Czechoslovakia:* Grapes are not as plentiful as in normal years but they are very good in quality.

*United States:* The Californian Crop Reporting Service in its July report released the first forecast of the 1935 grape crop. It is as follows: Wine grapes 485,000 sh. tons; raisin grapes, 1,037,000 sh. tons, and table grapes, 352,000 tons, making a total production of 1,874,000 tons of grapes. Production is thus seen to be very good, almost equal to that of 1932 and in any case, distinctly above that of 1934 and the average of the previous five years. The increase over last year in wine grapes is slight however, and wine production is expected to be about equal to that of 1934 and 1930 but above that of other years.

Condition of Californian vineyards was good at the end of August, growth was vigorous and soil moisture satisfactory. Insects were comparatively absent.

*Syria and Lebanon:* Conditions are generally favourable to vines and a plentiful yield of grapes, distinctly better than the average, is forecast.

*Algeria:* Temperatures, which were very high during the first half of August, and the continuing drought adversely affected the ripening of raisins. Some slight but beneficial rains fell on 20th and temperatures returned to normal and maturation become more satisfactory. The first days of September were again characterised by great heat and drought. Growth suffered and dried up vines are reported to a considerable extent. Grapes are also unsatisfactory, some of those gathered having ripened too quickly. Fendemia has caused some fairly extensive damage which did not appear serious but which may develop if rains encourage the rotting of the affected seeds. In some places, gathering has been advanced to avoid a possible loss.

Gathering began at the end of August but it is as yet impossible to assess the results. It is officially estimated that wine production will be below that of previous years, this estimate being compared with the crops of the last three years when an average of 418,000,000 Imperial gallons (502,000,000 American gallons) was obtained. Algerian viticultural circles anticipate a production below the average and as the average yield of the five years previous to 1934 with this year's area would give a production of 433,000,000 (520,000,000) there are grounds for expecting, from present indications, a wine outturn of 396,000,000 Imperial gallons (476,000,000 American gallons). It appears further, that the sugar content of the grapes gathered up to the present is rather low and is too often even below the permitted figure.

*French Morocco:* Grapes were damaged during August by the warm winds, scirocco and *chergui*, which prevailed in particular in the central part of the coast on the Algerian border, and by attacks of mildew and oidium. Yields will be lower. Wine-making had hardly commenced at the end of the month. Exports of fresh grapes to France were comparatively low.

*Tunisia:* Gathering began in August in the north and also, by the end of the month, in the south. Weather conditions were excellent and temperatures, which were not too high, were favourable for wine-making in the north. In the north where nearly all the Tunisian vineyards are situated, yields were good or fairly good according to localities. Oidium and mildew do not appear to be serious. In the south, which produces especially table grapes, ripening was even, the crop is healthy and is satisfactory in quantity.

## OLIVES

*Italy:* Olive trees have been adversely affected by the scarcity of rainfall. Olive production is expected to be generally smaller than that of last year in Central Italy and larger in other areas.

Attacks by fly are notified

*Portugal:* Flowering was satisfactory but fruiting was very irregular. The high temperatures and the serious lack of moisture have resulted in shedding in some areas. Production may be considered as normal at present

*Syria and Lebanon:* Conditions are generally favourable for olives. Production is expected to be normal and above that of 1934.

*Algeria:* The considerable heat and drought of the first half of August resulted in a fairly considerable shedding of olives. There are, in addition, some cases of *dacus oleae*. Temperatures were more normal in the second half of the month but they rose subsequently. It is now estimated that the crop will be smaller than those of previous years and below average.

*French Morocco.* A reduced crop in the coming year is confirmed in the south. The drought continued during August. *Scirocco* and *chergui* prevailed in the central parts of the coastal area near the Algerian frontier, particularly in the district of Meknès.

*Tunisia:* *Dacus oleae* caused some shedding in the olive plantations of the coast in the neighbourhood of Susa and Sfax, but the resulting loss is slight on the whole. Young olive trees came on well in August, growth is good, and it was anticipated that production would be satisfactory in Susa and plentiful in Sfax. Growth is good also in the northern and central areas. The crop appears to be average in the Tunis and Bizerta areas and good in Kef, but slight in other parts from the point of view of oil production.

## COTTON

*The General Situation.* -- The estimates and information received by the Institute since the publication of the August *Crop Report* indicate a worsening of conditions in the United States and a continuance of favourable conditions in India and Egypt. A plentiful crop is expected in the U. S. S. R. but the second estimate for China is expected to be smaller than the first forecast owing to the damage caused by floods.

With the information at present available it is possible to make a more exact evaluation than the round estimate made a month ago and we may now place production for the year 1935-36 at approximately 26,200,000 bales of ginned cotton, 11.5 million bales, or 44 %, of which are expected to be provided by the United States compared with 41 % (9,636,000 bales) last year out of a total world outturn of 23,570,000 bales.

Notwithstanding this increase, the total world supply of American cotton in the year 1935-36 will be practically what it was in 1934-35, that is, approximately 21 million bales, as a result of the fact that in 1934-35 world stocks of American cotton decreased by about 1.8 million bales. These stocks are now two thirds of what they were in August 1932 when they were at their highest point and their distribution is much more favourable for consumption prospects.

*Cotton.*

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON									
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	% 1935/36			
				1934/ 1935	Average 1935							1934/ 1935	Average 1935		
1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb.			= 100	= 100			
Greece 1) . . . . .	2) 133	91	54	146.2	246.9	2) 300	173	95	2) 63	36	20	173.3	316.9		
U. S. S. R. . . . .	3) 4,800	4,787	4,447	100.3	107.9	10,730	7,996	8,116	2,245	1,673	6,698	134.2	132.2		
Brazil: North States	1,729	1,366				5,192	3,572	1,971	1,086	747	412	145.4	263.4		
United States 5) . . . . .	28,652	26,987	38,024	106.2	75.4	54,917	46,060	68,737	11,489	9,636	14,380	119.2	79.9		
Mexico . . . . .	418	364				4) 945	1,066	952	4) 198	223	199	88.7	99.3		
China . . . . .	4) 5,498	6,828	5,484	80.5	100.3	12,790	14,930	10,842	2,676	3,123	2,268	85.7	118.0		
Chosen . . . . .	514	474	445	108.3	115.5	—	650	636	—	136	133	—	—		
India 4) . . . . .	14,494	12,991	14,411	111.6	100.6	—	—	—	—	—	—	—	—		
Turkey . . . . .	486	432				2) 970	775	406	2) 203	162	85	125.2	239.0		
Egypt . . . . .	1,733	1,798	1,766	96.4	98.1	—	7,483	7,269	—	1,566	1,521	—	—		

1) Area sown — 2) Unofficial estimate — 3) Estimate of the Plan. — 4) First estimate. — 5) See: Summary of Government's Cotton Reports

Stocks of American cotton in American mills are now, in fact, lower than last year by about 30 % and those in European mills by about 25 %. Stocks of American cotton in United Kingdom and Continental ports show a decrease of more than a half and the decrease is particularly noticeable in Germany and the United Kingdom. Since, as a result of the changes made by the American Government in its cotton policy, cotton prices this year will probably not be maintained as high as last year and as no country is in a position to compete seriously either in quantity or quality with American cotton, it is to be expected that the consumption of this commodity will show an appreciable recovery, having regard also to the favourable stock situation and the fact that the indications are that consumption will be at least as large as it was in 1934-35.

UNITED STATES. — During August the eastern part of the Cotton Belt received more rains than were required while areas to the west of the Mississippi experienced a practically unbroken drought and rather high temperatures. Condi-



tions in the south, however, were favourable and picking and ginnings went forward well. In the north and, especially, the north-west, picking is very late, conditions having been unfavourable. The situation which prevailed in August was an encouragement to the boll-weevil where weather continued cool and damp, and caused shedding and other damage in the dry areas. These developments are reflected in the figures of the September report which forecasts a production of 11,489,000 bales against 11,789,000 bales in the previous month, or a decrease of about 300,000 bales. The area to be picked, however, is increased by about 172,000 acres, as the percentage of area abandoned after 1st July is now estimated at 1.8, while, a month ago, the average coefficient of the years 1925 to 1934, or 2.4 %, was taken. Abandonment this year is thus very low in spite of the unfavourable opening of the season. It is to be inferred that the crop has been particularly well tended. The decrease in the estimate of production and the increase in that of the area bring down the estimated unit yield to 192.0 lb. of lint per acre compared with 198.3 lb. a month ago, 170.9 lb. last year and an average of 177.1 lb. per acre in the years 1924 to 1923. This is a good yield and ranks fourth in order of magnitude since 1924.

As a result of the weather conditions of August, the most considerable decline in prospects since 1 August naturally occurred in Texas, where the forecast of production fell by 10 % from one month to the other, and in Oklahoma where it fell by more than 7 %.

The market, which generally did not anticipate a bullish estimate, was surprised by the September report. The increase in prices, however, was slight and provisional, and the tendency is rather to keep prices within moderate limits.

The amount ginned during the first half of September is abnormally small. This is due principally to the small quantity ginned in Texas and Oklahoma, where rains virtually suspended picking during the early part of the month.

INDIA. The details of the first estimate for the present year were published by the Government at Calcutta on 5 September. The increase of about 12 % in the area cultivated up to the beginning of August, compared with that of last year, is the outcome of the favourable conditions prevailing at the time of sowing and to the good prices at which Indian cottons were sold last year. Weather conditions were generally favourable except in the United Provinces where sowings were late because rains arrived late and out of season.

The Provinces and Indian States showing the largest increases in the area sown to cotton are the following: Bombay-Deccan (including Indian States), 31 % compared with last year; Punjab (including Indian States), 15 %, Madras, 53 %; Burma, 19 %. In Hyderabad, where last year the cotton crop showed a sharp contraction of 65 % owing to bad weather, conditions were better this year but the area is still below the average.

As regards descriptions, the area sown to *Oomra* cotton is about 13 % greater, the increase being most appreciable in Khandesh (29 %); American *Punjab* and *Broach* are both larger.

EGYPT. — Picking is now general everywhere but about ten days later than last year. The fear of serious damage by insects and excessive humidity has so

far been proved to be unjustified. This year, however, the insect menace has been fought with great energy. Prospects are good, on the whole and yields are expected to be better than those of last year. The fears occasioned by the considerable rise of the Nile have led to an acceleration of picking in Upper Egypt.

Arrivals and exports at Alexandria are slow but stocks are 40 % of those at the same period a year ago. The statistical position has brought about very high prices and the spread between these and American prices has widened considerably of late. This accounts for the decrease in exports which, however, is also due largely to the absence of the chief Continental buyers, whose financial policies have largely reduced purchases from Egypt, and to the denunciation of the commercial treaty with Japan.

I. S.

*U. S. S. R.:* In general, picking began two weeks earlier than last year. In the Ferghana Valley the crop is very good. In some *kolkhoz* the unit yield of unginned cotton was about 1,870 lb. per acre, against the 1,410 anticipated in the Plan.

*Argentina:* The area sown to cotton during the year 1934-35 is estimated at 678,700 acres against 480,000 acres in 1933-34 and 307,900 acres on the average in the five years 1928-29/1932-33. Percentages: 141.4 and 220.4.

The most appreciable increase occurred in the Chaco, where an area of 558,000 acres is recorded against 430,000 acres last year. This is followed at a considerable distance by the Province of Corrientes with 61,500 acres, Santiago del Estero with 46,200 acres, and the National Territory of Formosa with 12,100 acres.

Weather conditions during July were generally favourable for harvesting which takes place normally in August. In some places frosts were recorded but damage was negligible.

*United States:* During the week ended on 21 August, 1935, weather conditions were warm and dry in most western parts of the cotton belt, while over central and eastern sections frequent light to heavy showers with more moderate temperatures, were very favourable. Insect activity was checked somewhat in western districts, but conditions in eastern parts were only moderately favourable for retarding their depredations.

During the week ended on 28 August, mostly dry weather continued in north-western parts of the cotton belt, while light to moderate showers were reported in the first part of the week in eastern sections. Temperatures were rather high in western parts, but somewhat low in eastern. In Texas the progress of cotton averaged fair to good, but there was considerable, local deterioration due to dry weather in northern districts, with some shedding and blooming to the top. Picking was nearing completion in the extreme south, but was only just getting under way in the north. In Oklahoma the progress of cotton was fair to good, and condition was good except in the west and extreme north, where it was rather poor. The crop was setting bolls generally, and some were opening in the extreme south, where the first bale was ginned on 21 August.

In the first part of the week ended on 4 September, heavy to excessive rains in the Eastern part of the Cotton Belt were detrimental and picking was delayed considerably. While beneficial precipitation occurred in some dry western localities, cool weather was rather general. In Texas some deterioration occurred in the dry section of the north-east; picking was almost completed in the extreme south. In Oklahoma only rather poor progress was made in Eastern and Southern sections. Some bolls were open in southern parts.

Cloudy rainy weather was very unfavourable in the eastern States of the Cotton Belt during the week ended on 11 September. Frequent showers hampered field work in the West, but in Central Sections fair to good progress was made. Conditions were very favourable for insect activity in Texas and in the Atlantic States

The early part of the week ended on 18 September was very unfavourable to cotton in the Eastern States of the Belt, due to the frequent rains with persistent clondiness and coolness, but the latter part brought more favourable conditions. In Western Sections the weather was more favourable. In Texas the week was favourable for cotton; picking made good progress where the soil was not too wet. Rains in the previous week favoured an increase in insect activity.

According to a telegram of 25 September, conditions in the Cotton Belt were generally favourable.

*Summary of Government's Cotton Reports, by cotton seasons.*

	Provisional estimates for dates indicated 1935/36	Final estimates		Percent. 1935/36	
		1934/35	Average 1929/30 to 1933/34	1934/35 = 100	Aver = 100
<i>Report referred to 1 July</i>					
Area in cultivation (acres) . . . . .	29,166,000	27,883,000	40,860,000	104.6	71.4
<i>Report referred to 1 August</i>					
Area left for harvest (acres) . . . . . (1)	28,180,000	(2) 26,987,000	(3) 38,024,000	105.5	74.9
Crop condition (per cent of normal) . . . . .	73.6	60.4	(4) 68.7	—	—
Production (5) . . . . .	11,798,000	9,636,000	14,380,000	122.4	82.0
Yield of lint per acre, in lb . . . . .	198.3	170.9	(4) 177.1	116.0	112.0
Cotton ginned to 1 August (6) . . . . .	94,241	99,787	82,957	94.4	113.6
Cotton ginned to 16 August (6) . . . . .	316,930	354,724	335,834	89.3	94.4
<i>Report referred to 1 September</i>					
Area left for harvest (acres) . . . . . (7)	28,652,000	(2) 26,987,000	(3) 38,024,000	106.2	75.4
Crop condition (per cent of normal) . . . . .	61.5	53.8	(4) 59.2	—	—
Production (5) . . . . .	11,189,000	9,636,000	14,380,000	119.2	79.6
Yield of lint per acre, in lb . . . . .	192.0	170.9	(4) 177.1	112.3	108.4
Cotton ginned to 1 September (6) . . . . .	1,133,000	1,103,000	1,255,081	80.7	90.3
Cotton ginned to 16 September (6) . . . . .	2,318,000	3,129,794	2,985,637	74.1	77.7

(1) Area in cultivation on 1 July, less the ten-year, 1925-34, average abandonment, about 2.4 per cent. — (2) Area actually harvested, per cent of abandonment about 3.2. — (3) Area actually harvested; the per cent of abandonment, about 1.7, does not take into account about 10½ million acres ploughed-up in 1930 after 1 July, under Agricultural Adjustment Administration contracts. — (4) Ten-year, 1924-33, average. — (5) In bales of 478 lb. net weight and exclusive of linters. — (6) In running bales, counting round bales as half-bales and exclusive of linters. — (7) Area in cultivation on 1 July, less 1.8 per cent of abandonment.

*Hint.* Cotton exports during July were much below those of the corresponding month of the year 1933-34, amounting to 3,300 centals (600 bales) against 7,900 centals (1,700 bales), a decline of 58.5 %. Total exports for the period October-July in the

present year were 132,700 centals (27,800 bales) against 114,600 cental (24,000 bales) in the corresponding period of 1933-34, an increase of 15.9 %.

*Peru:* The area cultivated to cotton during the year 1934-35 is estimated at 367,000 acres as compared with 322,400 acres in 1933-34 and an average during the years 1928-29 to 1932-33 of 309,000 acres; percentages: 113.8 and 118.8.

Production of ginned cotton is placed at 1,634,600 centals (341,970 bales), 91.1 % consisting of the *Tanguis* variety. Last year production was 1,327,800 centals (277,780 bales) while the average was 1,218,000 centals (254,820 bales); percentages: 123.1 and 134.2. Production of cottonseed is 2,836,600 centals (141,830 short tons) compared with 2,233,300 centals (111,660 short tons) in 1934 and an average of 2,038,000 centals (101,900 short tons); percentages: 127.0 and 139.2.

*India:* Crops on the whole were in fair condition, according to a report dated 10 September.

Rainfall in Bihar and Orissa was general at the end of August and crops were in fair condition.

Rainfall in Sind up to 7 September was slight. Cotton was flowering.

In the Punjab crop condition of cotton according to a telegram of 12 September was 97 % of the normal.

*Indo-China:* The picking in North Annam seemed better than that of last year. It was considered average in some other provinces of Annam.

*French West Africa:* The crop harvested at the beginning of 1935 in Dahomey gave better results than that of last year. There is a tendency to grow more of the *Ihran* variety. The sudden cessation of the rains in the Sudan during the first quarter of the year interfered with ripening and a general decrease in yields is reported. The work of selection was continued during 1934. The "Allen" variety is being adopted more and more by natives, the output of this type being more than double that of 1934 and four times greater than that of 1933.

*Egypt:* Maturation of the bolls is in progress and their opening is increasing in proportion. Harvesting began in the early cultivations in the Southern Delta and in the lands under perennial irrigation in Upper Egypt. In basin irrigated lands, harvesting is in active progress in both early and general cultivations.

Up to the present, the condition of the crop has been satisfactory save in the areas in Middle Egypt and Asyut province, where the attack of cotton-worm was severe, and except for what may be expected from the deleterious effect of the unfavourable weather conditions, which set in lately on the opening of the bolls in certain provinces. The effect will become more apparent in the following few weeks.

*Nigeria:* In July the distribution of cotton seed in the Northern Provinces was continuing and was expected to exceed that of last year.

*Nyasaland:* Owing to the abnormally cold weather experienced in July the breaking of the cotton was considerably delayed. The 1935-36 production of ginned cotton was estimated at about 64,000 centals (13,400 bales of 478 lb.) as compared with 38,900 (8,100) in 1934-35 and 23,700 (5,000) on the average 1929-30 to 1933-34 (Native and European production). Percentages: 164.6 and 270.1.

*Uganda:* Demands for seed and the acreage prepared for planting were above normal in July. The abnormally dry conditions experienced during the month hindered plantings and it was expected that considerable resowing would be necessary in the plots planted in July. Early plantings withstood the unfavourable conditions very satisfactorily. The acreage planted to the end of July amounted to 622,600 acres as against 684,600 to the same date last year.

*Tanganyika:* Cotton prospects were good in July. The Mwanza crop was estimated at about 130,000 centals (27,600 bales of 478 lb.) of which 40,000 (8,400) had been already sold.

## FLAX

*Austria:* Flax had been lifted almost everywhere by the beginning of September. The fibre was short but of good quality.

*Belgium:* Flax shows fairly good yields but they are not up to expectations. Harvest yielded 110-130 centals per acre (200-240 bushels).

*Estonia:* The weather during August was favourable to the growth of the flax crop.

*Irish Free State:* An increase in the flax acreage is reported.

*France:* The flax harvest was finished in good conditions.

*Hungary:* The quality of the flax crop for fibre in average. On 10 September, threshing of the flaxseed crop was generally finished, yields being rather light.

*Lithuania:* The wet weather of August was favourable to the flax crop.

*Netherlands:* Flax is rather short in the stalk and the crop is smaller in bulk than last year. The yield of seed is below normal.

*Poland:* Crop condition of flax on 15 August was 3.4 against 3.4 on 15 July and 3.2 on 15 August last year.

*Czechoslovakia:* Flax shows noticeable variation in condition. The crop is light and short where it has been affected by drought. On 1 September crop condition was between average and below average in the larger part of the producing areas.

*U. S. S. R.:* Harvesting of flax was late this year and was still in progress at the end of August. On 1 September in the Union as a whole, harvesting had been completed on 90.3 % of the cultivated area. Up to the same date only 65 % of the flax harvested had been retted. Notwithstanding this delay and a slight decline in the area sown, a larger crop than those of previous years is expected.

*Argentine.* According to the monthly report published on 22 August by the Department of Rural Economy and Statistics of the Ministry of Agriculture in Buenos Aires, the situation of the crops in the chief flax growing areas may be summarised as follows.

In the last of the Province of Buenos Aires the hardness of the soil impeded sowings. They made rapid progress in the south-east and it appeared that there would be an increase in the area. In other parts, with the exception of the north and east, conditions were generally favourable. In the north and west there was frost damage entailing resowing.

In the Province of Santa Fé sowings were going forward rapidly and an increase in area over last year was anticipated in the south; this expansion will offset the decrease which will occur in other parts of the Province. Germination was irregular

### Flax

COUNTRIES	†) AREA				†) PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935 1935/36	1935	1934	Aver. 1929 to 1933	1935	1934	Aver. 1929 to 1933	% 1935 1935/36	
	—	—	—	—	—	—	—	—	—	—	—	—
	1935/36	1934/35	1929/30 to 1933/34	1934 — 1935 = 100	1935/ 1936	1934/ 1935	1929/30 to 1933/34	1935/36	1934/35	1929/30 to 1933/34	1934 — 1935 = 100	Aver.
	1,000 acres				1,000 centals			1,000 pounds			= 100	

### Fibre.

Germany ††)	51	22	20	235.5	257.2	...	592	343	...	59,210	34,335	...	...
Austria ††)	5	4	7	105.6	62.9	63	70	103	6,283	7,011	10,251	89.6	61.3
Belgium . . .	46	35	42	129.4	109.7	611	482	302	61,109	48,172	30,209	126.9	201.9
Bulgaria . . .	10	4	1	229.0	941.2	...	13	2	...	1,271	222	...	...
Estonia . . .	73	53	56	138.2	129.1	233	156	156	23,303	15,618	15,623	149.2	149.2
Finland 1)	12	11	9	101.4	129.4	...	37	28	...	3,664	2,799	...	...
France . . .	56	58	54	97.2	104.8	...	323	356	...	32,334	35,596	...	...
N. Ireland . .	28	16	17	177.0	161.9	...	82	76	...	8,236	7,605	...	...
Hungary . . .	8	8	—	104.0	—	26	27	—	2,575	2,666	—	96.6	—
Latvia . . .	168	114	110	146.7	152.7	587	357	335	58,662	35,671	33,510	164.5	175.1
Lithuania . .	227	150	159	151.6	143.3	...	478	514	...	47,794	51,360	...	...
Netherlands .	23	15	24	150.5	97.5	148	120	158	14,771	11,980	15,769	123.3	93.7
Czechoslovakia	33	23	27	141.3	122.8	...	122	112	...	12,246	11,237	...	...
U S S. R. 2)	5,115	5,214	5,276	98.1	97.0	...	11,685	10,582	...	1,168,454	1,058,222	...	...
Egypt . . .	5	5	3	92.8	155.2	29	32	21	2,932	3,192	2,069	91.8	141.7

### Linseed

Germany . . .	51	22	20	235.5	257.2	...	140	70	...	249	125	...	...
Austria . . .	...	3	4	...	...	11	10	16	20	19	29	106.1	70.8
Belgium . . .	46	35	42	129.4	109.7	204	160	212	364	286	378	127.2	96.1
Bulgaria . . .	10	4	1	229.0	941.2	...	19	5	...	34	8	...	...
Hungary . . .	31	30	—	104.6	—	160	141	—	286	251	—	113.9	—
Italy . . .	11	11	18	104.8	61.9	...	46	99	...	82	177	...	...
Latvia . . .	168	114	110	146.7	152.7	520	334	333	928	597	594	155.5	156.1
Canada . . .	215	227	463	94.8	46.4	916	510	1,450	1,636	910	2,589	179.7	63.2
United States .	2,138	969	2,500	220.6	85.5	8,064	2,942	7,573	14,400	5,253	13,523	274.1	106.5
India . . .	3,381	3,261	3,096	103.7	109.2	9,363	8,422	8,534	16,720	15,040	15,240	111.2	109.7
Egypt . . .	5	5	3	92.8	155.2	35	42	22	62	74	40	84.1	156.7
Eritrea . . .	5	6 <sup>3)</sup>	3	85.6	170.3	23	24 <sup>3)</sup>	19	41	43 <sup>3)</sup>	34	95.5	123.3
Argentina . . .	6,128 <sup>4)</sup>	8,103 <sup>4)</sup>	7,499 <sup>4)</sup>	75.6	81.7	...	43,167	38,306	...	77,084	68,404	...	...

†) The years indicated are those of the harvest, single years referring to the Northern hemisphere, double years to the Southern. — ††) Production expressed in terms of air-dried stalks. — 1) Flax and hemp. — 2) "Dolgunez" variety. — 3) Average 1931 to 1933 — 4) Area sown. — 5) Area harvested

in the central and northern parts of the Province and losses there were appreciable but they were partly mitigated by the rains of August. Crops in the north looked better.

An increase over last year was expected in Córdoba in the northern and eastern areas where land which could not be sown to wheat owing to the drought, has been sown to flax. Sowing had not been started in other parts. Frost caused damage to a considerable proportion of the crop which had already sprouted. The situation, on the whole, improved after the recent rains.

Sowings in the Province of Entre Ríos were considerably impeded by drought. The sowings suffered considerably from the drought and the July frosts. Grasshopper damage is reported from the north-east.

In the Province of Santiago del Estero and in the Pampa Territory, drought impeded sowings, which were delayed and caused irregular sprouting. There was also frost damage.

(Telegram of 26 September): The linseed in a considerable part of the country is backward in growth owing to the drought and absence of warmth, which have caused serious damage to sowings. Fairly low outturns of this crop are expected and it is at present in urgent need of rain in all parts.

## HEMP

*Austria:* Hemp was rather backward at the beginning of September. Seed formed satisfactorily.

According to the most recent estimate, the production of dried hemp stalks this year is about 13,100 centals against 13,670 centals last year and an average of 16,070 centals in the five years 1929 to 1933; percentages 96.0 and 81.6. Hempseed production is placed at about 1,100 centals against 900 centals in 1934 and an average of 1,500 centals in 1929-1933; percentages 125.0 and 76.0.

*Italy:* The hemp crop suffered generally from the spring frosts, inadequate rainfall and heat. In Emilia, the output is expected to be a little smaller than that of last year and in Campania a crop about 25 % below that of 1934 is anticipated.

*Poland:* On 15 August crop condition of hemp was 3.4 against 3.4 on 15 July and 3.3 on 15 August of last year.

*Czechoslovakia:* According to the most recent estimate, the area cultivated to hemp this year is about 18,150 acres against 18,100 in 1934 and 20,000 on the average of the five years ending 1933, percentages 100.4 and 90.8.

On 1 September crop condition of hemp in most of the areas growing this crop was average.

## HOPS

*Great Britain and Northern Ireland:* Generally the weather conditions during August were ideal for hops and except for crops on the drier lands, which would have benefited from earlier rain, growth was satisfactory. The crops are healthy and although the cones are on the small side the quality is expected to be much better than usual. Very little disease is reported. The yield is anticipated to be less than last year but equal to the average of the last ten years.

*Hungary:* The drying of hops was in progress on 10 September. Quality is above average.

*Czechoslovakia:* According to the most recent estimate, the area cultivated to hops this year is about 28,900 acres against 28,900 in 1934 and 32,600 on the average of the five years ending 1933; percentages 100.1 and 88.7.

Yields of hops will be generally smaller owing to the weather. Quality is satisfactory, however. The crop grew better in places where there was more moisture.

*United States:* According to the most recent estimate, production of hops this year is expected to be about 47,100,000 lb., compared with 41,200,000 lb. in 1934 and an average of 29,415,000 lb. in the five years 1929 to 1933. Percentages: 114.3 and 160.1.

## TOBACCO

*Hungary:* According to the most recent estimate, areas cultivated to tobacco this year was about 41,200 acres against 40,500 in 1934 and 56,200 on the average of the five years ending 1933; percentages: 101.5 and 73.2. The corresponding production is estimated at about 38,000,000 lb. centsals against 40,000,000 lb. and 72,000,000; percentages: 94.5 and 52.4.

Tobacco leaves grew well after the rain. Gathering and drying of leaves was proceeding according to the report of 10 September.

*Italy:* The non-irrigated crop in some parts of Emilia and Venetia has suffered some damage from the unfavourable conditions of the year. In some places, production is thought to be rather low but of good quality. In the Salento area, on the other hand, the crop is larger than that of last year.

*Czechoslovakia:* According to the most recent estimate, the area cultivated to tobacco this year about 23,700 acres against 25,000 in 1934 and 21,000 on the average of the five years ending 1933; percentages 94.7 and 112.7.

*United States:* The Department of Agriculture, in a report based on the outlook on 1 September, estimates this year's tobacco production at 1,264 million lb. against 1,046 million lb. in 1934 and an average of 1,434 million lb. during the five years 1929 to 1933. Percentages: 120.8 and 88.1.

*Japan:* Weather conditions in August were favourable to the tobacco crop

*Algeria:* Temperatures were very high during the first half of August and the tobacco crop suffered as the drought continued. The first leaves to be picked were brittle. Temperatures dropped during the second half of the month and there was some rain. The quality of the leaves picked improved and was fairly satisfactory. Drying was done in normal conditions. It is expected that the crop will be distinctly smaller than the last and equal or slightly superior to the average crop of the five years 1929-1933.

*French Morocco:* Harvesting of tobacco was finished at the end of August. Owing to the unfavourable weather, yields are not high.



## OTHER PRODUCTS

### Cacao

*Haiti:* Exports of cacao in July were 1,300 centals against 1,100 centals in July 1934, or 13.9 % greater. Total exports of the first ten months of the present year amount to 24,000 centals against 33,700 centals during the same period in 1933-34, a decline of 29.1 %.

*French West Africa.* Exports from the Ivory coast in the first seven months of the year reached 666,000 centals against 608,000 centals between January and July 1934.

*Gold Coast and British Togoland: Minor crop.* — Unfavourable weather conditions in June and July hindered reaping and drying of the minor crop, which is very small this year. It was reported at the end of July that, owing to the low prices, the smallness of the crop and the unfavourable conditions, it was expected that growers would either pick and hold for offering with early main crop or leave the pods on the trees, and that the amount of minor crop to be offered for sale would not exceed 18 million pounds.

The marketing of minor crop was small in July (3 million pounds), bringing the total sold to about 10 million pounds by the end of the month. At that date, the amount in farmers' hands was estimated at about 3 million pounds.

*Total crop.* — The following are the data of crop movement in the first ten months of 1934-35 in million pounds:

	July 1935	Oct 1934 to July 1935	July 1934	Oct 1933 to July 1934
Railway offloadings, Takoradi .	1	188	2	182
Exports:				
Takoradi . . . . .	6	165	6	187
Accra . . . . .	11	218	8	187
All ports . . . . .	24	493	17	462

### Tea

*India:* In North India the rainfall was deficient in July and crop prospects were only fair; in the South the weather was showery, with strong winds, and prospects were poor. Production up to the end of July in the North showed a decrease of 4,986,400 lb. on that up to the same date last year; that in the South was 8.2 % ahead of the corresponding figure for last year.

*Indo-China:* There was a plentiful picking in Tonkin throughout July.

*Japan:* Crop condition of tea gardens at the beginning of September was bad.

### Coffee.

*Brazil:* According to the figures of the National Coffee Department, the total quantity of coffee destroyed up to 31 July 1935 was 46,504,000 centals. Of this quantity only 46,297 centals were destroyed during the first month of the commercial season commencing 1 July.

*Columbia:* The coffee harvest was hindered by unfavourable weather and scarcity of labour. Very serious damage to the crop is reported in some districts.

*Guatemala:* Young coffee plantations on the Pacific coast have been damaged by wind and drought. Elsewhere, flowering was normal and a plentiful production is expected in the country as a whole in 1935-36.

*Haiti:* Coffee exports during July were 9,200 centals against 16,100 centals in July 1934, or 37.9 % smaller. Exports during the first ten months of the present year amounted to 381,800 centals against 698,400 centals during the same period of the year 1933-1934. The substantial fall (44.4 %) is the result of the exceptionally poor crop of last year. Next year's production, however, is expected to be plentiful and is estimated at 880,000 centals.

*Indo-China:* Work in coffee plantations was a little hampered by rains in Tonkin at the beginning of July.

*Kenya:* In July picking was well advanced in most districts and crop prospects were satisfactory.

The area planted to coffee was estimated by the end of July at 103,400 acres as against 102,700 in 1934-35 and 98,800 on the average 1929-30 to 1933-34. Percentages: 100.7 and 104.6.

*Uganda:* It was reported in July that an abundant production of European Robusta coffee of good quality was expected, while prospects for the Arabica crop were less favourable.

*Tanganyika:* During the month of July in the Arusha and Moshi districts picking was in progress and prospects were good. The Bukoba crop, estimated at about 21,300,000 lb., was coming in faster owing to the dry weather conditions.

## Groundnuts.

*Indo-China:* Harvesting was proceeding in the delta of Tonkin and North Annam at the end of July and gave good results in these two areas. At the end of July growth was good in the mountainous regions of Tonkin, in the central part of Annam and in Cambodia.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning groundnut area:—

Area harvested in July . . . . .	38,100	50,400
Area harvested from 1 January to 31 July . .	277,009	287,600
Area planted up to the end of July . . . . .	159,600	167,500

*French West Africa:* Preparation of the soil for this year's crop was made in good conditions in Senegal. The sowings were generally of good quality and it was reported

that good results had been obtained in the campaign against the parasites of the groundnut. Animals are being used to a greater extent this year. Exports in the first six months show a decline in weight of 30 % on those of last year. The oil establishment of Susa have considerably increased their output. In Guinea, rainfall was abnormally low during the first quarter. In Dahomey there was much rain in the north but little in the south. The 1934-35 crop was satisfactory in the north. Exports of groundnuts in the shell from the Sudan during the first quarter of the year were three times as large as the shelled exports and twice as large as last year's.

*Egypt:* The groundnuts crop is growing and the pods are forming satisfactorily in the early cultivations. Watering is general in all cultivations, and hoeing is in progress in the late-sown areas. The crop is normal.

### Colza and sesame.

*Hungary:* Sowing of winter colza had been finished on 10 September in some places. Germination was satisfactory.

*Netherlands.* Owing to the drought the condition of colza showed deterioration on 19 August and, consequently, production this year will be about 68,000 centals (137,000 bushels) against 126,000 (253,000) in 1934 and 72,000 (144,000) on the average of the five years ending 1933; percentages 54.1 and 94.9

*Czechoslovakia:* According to the most recent estimate, area cultivated to rapeseed this year was about 9,140 acres against 3,300 in 1934 and 3,490 on the average of the five years ending 1933, percentages 277.1 and 262.2. The corresponding production is estimated at about 105,480 centals (210,960 bushels) against 32,120 (64,250) and 32,370 (64,740); percentages 328.4 and 325.8.

*Indo-China:* Yields were satisfactory in the delta of Tonkin and average in Cambodia.

*Tanganyika:* It was reported in July that the Lindi crop of sesame was a moderate one. In the Tanga district prospects were good.

### Jute

*India:* The final estimate of the jute crop is as follows:

	1935	1934	Average 1929-33	% 1935 1934 100	% 1935 Aver 100
Area (000 acres) . . . . .	1,947	2,670	2,686	72.9	72.5
Production (000 centals) . . . . .	25,588	34,100	33,852	75.0	75.6

### Sericulture

*Italy:* Mulberry production is estimated this year at 21,500,000 centals, compared with 25,200,000 centals in 1934 and an average of 29,600,000 centals during the period 1929 to 1933; percentages: 85.2 and 72.6. This year's production, though small, will suffice for the greatly reduced silkworm rearing requirements. Cocoon production is estimated at 39,200,000 lb. against 63,600,000 lb. in 1934 and an average of 94,000,000 lb. in the years 1929 to 1933; percentages. 61.7 and 41.7.

*Brazil:* According to the figures of the Brazilian Ministry of Agriculture, the production of cocoons in 1934, was 1,323,000 lb. against 1,102,000 in 1933 and 882,000 in 1932.

*Indo-China:* In Annam the July rains assisted the sprouting of young leaves. The crop of leaves was abundant and rearings became considerable at the end of July. Considerable rearings were made in the same month also in Cambodia.

*Japan:* The quantity of silkworm eggs placed in incubation for the summer-autumn production is 2,861,000 ounces, that is, 3 % less than last year's quantity which was 2,944,000 ounces and 15 % less than the average of 3,363,000 ounces of the five years 1929 to 1933.

## FODDER CROPS

*Germany:* Rainfall in August was inadequate for fodder crops.

*Austria:* All kinds of mangels show poor development. Red and mixed clovers have given a good second cut. Crop condition of alfalfa is especially poor in north-eastern areas. The yield of clover seed of all kinds is fairly satisfactory.

At the beginning of September hay from meadows cut only once and from upland meadows had been brought in everywhere. Aftermath on meadows which are cut two or more times is very slow.

Owing to the cold weather of the second half of August in the mountainous areas, alpine pastures yield less and less. Common pastures give a poor bite for animals. An appreciable shortage of fodder being experienced in many areas.

The following are partial results of the hay cut (in 1000 centals and 1,000 short tons): red clover (two cuts), 11,440 (572) against 9,960 (498) in 1934 and 13,390 (665) in 1933; alfalfa (two cuts), 3,420 (171) against 2,890 (144) and 3,920 (196); mixed clovers (two cuts), 4,560 (228) against 3,640 (182) and 4,340 (217); meadows (first cut) 52,140 (2,607) against 47,420 (2,370) and 55,780 (2,789).

*Belgium:* Pastures have been seriously affected by drought and it has been necessary almost everywhere to give animals supplementary feeding. Owing to the drought the second clover cut is not plentiful.

*Bulgaria:* As a result of the drought during the first two decades of August no second cutting was taken in a large number of permanent meadows. This will be utilized as pasture; on the other hand, four cuts have been taken in temporary meadows in some districts as a result of the good rains received during the last decade of the month.

*Estonia:* Weather was rainy during August and unfavourable for hay-making. The supply of fodder will be greater than the average of the last ten years, but the quality will be mediocre.

The growth of grass in pastures is satisfactory.

*France:* The good general rains which were experienced at the end of August and at the beginning of September and which, except in the west, were followed by a week of fine weather, appreciably improved the position of fodder crops, permanent meadows,

*The condition of fodder crops.*

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 September 1935			1 August 1935			1 September 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
<b>CLOVER:</b>									
Germany . . . . .	—	—	3.5	—	—	3.3	—	—	3.4
Austria 1) . . . . .	—	—	3.3	—	—	3.3	2.5	—	—
Netherlands 1) . . . . .	—	—	2) 56	—	2) 64	—	—	—	2) 58
<b>ALFALFA:</b>									
Germany . . . . .	—	—	3.5	2.8	—	—	2.8	—	3.2
Austria . . . . .	—	—	3.5	—	—	3.2	—	—	—
<b>MANGELS:</b>									
Germany . . . . .	—	—	3.2	2.9	—	—	2.8	—	—
Austria . . . . .	—	3.0	—	—	3.0	—	2.2	—	—
Denmark: . . . . .	—	—	94	—	—	—	—	—	88
Finland . . . . .	—	f)	—	—	—	f) g)	—	—	—
Norway . . . . .	—	—	81	—	—	95	—	—	94
Netherlands . . . . .	—	—	2) 62	—	—	2) 68	—	—	2) 67
Switzerland . . . . .	—	—	97	—	—	—	—	—	—
Canada 3) . . . . .	—	—	89	—	—	96	—	—	84
<b>TEMPORARY MEADOWS:</b>									
Austria 4) . . . . .	—	—	3.2	—	—	3.1	2.6	—	—
Estonia . . . . .	102	—	—	—	100	—	—	—	—
Finland . . . . .	c) f)	—	—	c) f)	—	—	f)	—	—
Norway . . . . .	101	—	—	—	—	99	101	—	—
Sweden . . . . .	3.3	—	—	2) 3.3	—	—	—	—	2.8
Switzerland . . . . .	—	—	95	—	—	—	—	—	—
<b>PERMANENT MEADOWS:</b>									
Germany:									
irrigated meadows . . . . .	—	—	3.1	2.8	—	—	—	3.0	—
other meadows . . . . .	—	—	3.6	—	—	3.2	—	—	3.4
Austria . . . . .	—	—	3.4	—	—	3.2	2.0	—	—
Estonia . . . . .	120	—	—	120	—	—	—	—	—
Finland . . . . .	—	f)	—	—	f)	—	—	f) g)	—
Norway . . . . .	103	—	—	—	—	99	—	100	—
Poland:									
ordinary meadows . . . . .	—	—	2) 2.9	—	2) 3.0	—	—	—	2) 2.7
low meadows . . . . .	2) 3.1	—	—	2) 3.2	—	—	—	—	2) 2.8
meadows improved . . . . .	—	—	2) 2.9	2) 3.2	—	—	2) 3.1	—	—
Sweden 5) . . . . .	3.2	—	—	2) 3.2	—	—	—	—	2.4
Switzerland . . . . .	—	—	90	—	—	—	—	—	—
<b>PASTURES:</b>									
Germany . . . . .	—	—	3.6	—	—	3.1	—	—	—
Austria . . . . .	2.9	—	—	2.8	—	—	2.6	—	—
Denmark . . . . .	—	—	68	—	—	83	—	—	90
Netherlands . . . . .	—	—	2) 52	2) 72	—	—	—	—	2) 57
Poland:									
permanent pastures . . . . .	—	—	2) 2.7	—	—	2) 2.8	—	—	2) 2.8
temporary pastures . . . . .	—	—	1) 2.8	—	—	2) 2.9	—	2) 3.0	—
Switzerland . . . . .	—	100	—	—	—	—	—	—	—
United States . . . . .	—	—	93	101	—	—	—	—	71

a) Above the average. — b) Average. — c) Below the average. — d) Excellent. — e) Good — f) Average — g) Bad — †) See explanation of the various systems on page 665. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Turnips — 4) Klee grass. — 5) Meadows for hay.

grasses and pastures in particular, greening excellently and showing a very satisfactory condition in the middle of September. Fodder tubers and roots are giving average yields. The last cuts of hay and fodder grains were a little damaged by persistent rains in the west.

The first sowings of early clover have begun rather earlier than usual in some places.

*Great Britain and Northern Ireland:* Root crops and pastures deteriorated during the first three weeks of August when weather was warm and dry but they benefited from the rains of the last week.

The hay harvest was completed in England and Wales during the early part of the month and the quality and condition of the crop is reported to be very good. Second cuts of clover, where taken, are light. Mangels have suffered less than the other root crops and it is anticipated that the yield will only be slightly below average. Turnips and swedes are a variable crop and there are many patchy areas. Roots are small and the yield will be under average. In Scotland, the root crops were in good condition at the beginning of the month.

The yield of hay from temporary meadows is placed at 29.1 cents per acre and that of permanent meadows at 22.8 cents per acre.

*Hungary:* All fodder crops improved somewhat after the rains. On 10 September it was stated that an average outturn of mangels was anticipated. The second cuts in permanent meadows gave yields below the average. Pastures are affording some feed for live stock.

*Italy:* It is confirmed that fodder crops underwent appreciable damage owing to the drought in the spring. The first cut was generally poor in quantity and quality. The August cut gave very poor results.

The situation improved at the end of August and in the first days of September but fodder supplies are still inadequate.

*Latvia:* Clover production is estimated at 29,310,000 cents (1,465,000 short tons) against 26,601,000 cents (1,330,000 short tons) in 1934 and 33,664,000 cents (1,683,000 short tons) on the average during the years 1929 to 1933. Percentages: 110.2 and 87.1.

Corresponding figures for the production of hay from permanent meadows are 41,479,000 cents (2,073,900 short tons), 32,939,000 cents (1,646,900 short tons) and 39,418,000 cents (1,971,000 short tons) respectively; percentages: 125.9 and 105.2.

*Netherlands:* Condition of mangels was not at all satisfactory except on clayey soils. Red clover and pastures have suffered considerably from drought. On the higher lands clover has withered completely. In lower districts growth has almost ceased.

*Poland:* Weather conditions were not very favourable to fodder crops in the second half of August. Haymaking was in progress during the last week of the month nearly everywhere. In Greater Poland, where it is already completed, the second cut yields of hay and clover are poor.

*Sweden:* The fine weather of August assisted haymaking. The hay is of good quality. Lifting of fodder roots is late owing to drought. On 1 September condition of fodder roots was 90, against 97 on 1 August this year and 103 on 1 September 1934.

According to the first estimate, production of hay from temporary meadows is 109,200,000 centals (5,460,000 short tons) against 99,000,000 centals (4,900,000 short tons) in 1934 and an average of 108,500,000 centals (5,400,000 short tons) in the five years 1929 to 1933. Percentages: 110.4 and 100.7.

Corresponding figures of the production of hay from permanent meadows are: 13,430,000 centals (671,000 short tons), 10,490,000 centals (524,500 short tons) and 12,693,000 centals (634,600 short tons); percentages, 128.0 and 105.8.

*Switzerland:* Permanent and temporary meadows now look much fresher as a result of good rains and a good yield is expected in the autumn. Winter fodder crops are developing satisfactorily. The aftermath is only average. On light soils in particular the yield leaves much to be desired. The *alpages* have given satisfactory yields.

*Czechoslovakia:* Fodder crops have suffered particularly from drought. The condition of clover sown in stubble is very poor. The aftermath in clover and permanent meadows is very slight, in several areas there was practically no growth. Alfalfa, though suffering from the lack of moisture like other crops, withstood the drought better in deeper soils in some areas. A shortage of fodder is being experienced generally.

*Yugoslavia:* Owing to the drought, meadows gave, on the whole, a poor yield of hay except in the Drava area where the situation is better. The quality of the hay, however, is good. In August, the rains brought about an appreciable improvement in the situation of the fodder crops. A strong demand for hay on the Yugoslavia markets and a consequent rise in prices is reported.

*Argentina.* — (Telegram of 26 September): Fodder crops are backward for the time of year and pastures are poor in appearance.

*Canada:* According to the most recent estimate, production of hay and clover this year is about 275,760,000 centals (13,788,000 short tons) against 223,480,000 centals (11,174,000 short tons) and an average of 287,100,000 centals (14,354,000 short tons) in the five years 1929 to 1933. Percentages: 123.4 and 96.1.

*United States:* The most recent estimate places the production of tame hay this year at 1,498 million centals (74.9 million short tons) against 1,046 million centals (52.3 million short tons) in 1934 and an average of 1,366 million centals (68.3 million short tons) in the five-year period 1929-33. Percentages: 143.2 and 109.7.

Corresponding figures for wild hay are. 246 million centals (12.3 million short tons) 95 million centals (4.7 million short tons) and 204 million centals (10.7 million short tons). Percentages: 259.0 and 120.8.

*French West Africa:* The mangel crop is in full growth in Guinea and will provide fodder reserves for the winter.

*Algeria:* Owing to the continuous drought, pastures were bare at the end of the month and stubble fields were almost entirely used up.

*French Morocco:* Pastures in all parts were completely bare at the end of August. The watertable was lower than normal. *Wadis* were also at a low level.

*Tunisia:* At the end of August pastures were not well supplied in the Tunis and Bizerta districts where animals were turned on the stubble. In the Kef area they were very bare and hardly yielded sufficient feeding for herds. In Susa the fodder crops were fairly good, while in the Sfax area there is no permanent or temporary fodder except alfalfa grown at the oases. In both these areas pastures are completely dry, but, supplemented by stubble, they yield satisfactory feeding for herds. A shortage of grass, however, is being experienced in the latter region

## LIVESTOCK AND DERIVATIVES

### Livestock in England and Wales.

The following table gives the numbers of livestock in England and Wales for the years 1926 to 1935 on holdings exceeding one acre in extent.

YEAR	Horses	Cattle				Sheep	Pigs
		Total	Cows and heifers in milk	Cows in calf but not in milk	Heifers in calf		
1935. . . . .	873,500	6,538,600	2,231,000	382,200	436,500	16,470,700	3,811,700
1934. . . . .	885,600	6,660,200	2,213,900	363,900	417,300	16,527,000	3,320,200
1933. . . . .	902,600	6,620,200	2,179,000	358,200	418,000	18,089,900	3,069,100
1932. . . . .	917,100	6,358,000	2,116,600	352,000	402,800	18,495,400	3,184,600
1931. . . . .	938,500	6,065,000	2,043,100	321,700	425,300	17,749,200	2,783,000
1930. . . . .	961,300	5,844,800	2,033,400	288,800	352,800	16,315,800	2,310,200
1929. . . . .	999,300	5,957,600	2,054,100	293,700	364,800	16,105,500	2,366,500
1928. . . . .	1,038,400	6,026,000	2,066,200	301,700	355,200	16,386,100	2,967,900
1927. . . . .	1,077,200	6,275,200	2,096,400	307,000	387,300	17,072,300	2,691,500
1926. . . . .	1,128,800	6,253,100	2,065,100	294,600	389,600	16,858,700	2,200,000

In accordance with the general tendency for many years, the total number of horses at 873,500 again decreased, but as in 1934 there was an increase in the number of "unbroken horses" both under and over one year old, there was a decline of 1.7 % in the number of horses used for agricultural purposes (including mares for breeding) but the decrease in other horses was actually and relatively greater.

For the first time since 1930 there was a net reduction in the number of cattle, the total of 6,538,600 being 1.8 %, or 121,600, less than in 1934. A further increase was recorded in the dairy herd, which, at 2,049,700 resulted in a new maximum figure for this class. The rise in the number of cows and heifers in milk of 17,100 (0.8 %) was relatively smaller than in the case of cows in calf but not in milk which were higher by 18,300 (5.0 %) and heifers in calf, where there was an increase of 19,200 or 4.6 %. There was a general decline in all classes of "other cattle", which was most noticeable, however, among those under one year which were



87,900 (7.0 %) fewer. "Other cattle" two years old and above declined by 32,800 (3.1 %) and those one year old and under two showed a reduction of 55,500 (4.1 %).

Although the total number of sheep in the country at 16,470,700 showed a small decrease of 56,300 (0.3 %) the decline was restricted to ewes kept for breeding and other sheep between six months and one year old, larger numbers being returned in the other classes. The number of ewes kept for breeding fell by 2.6 %, those of "other sheep" over six months and under one year old by 17 %. The number of "other sheep" one year old and above increased by 4.3 while "other sheep" under 6 months old showed an increase of 2.1 %.

A further considerable expansion took place in the number of pigs in the country, the total of 3,811,700 showing an increase of 491,500, or 14.8 %, compared with 1934, the highest previously recorded. All classes of pigs were responsible for the general growth.

### Poultry in England and Wales.

The figures in the following table have been compiled from returns furnished annually in June by occupiers of holdings exceeding one acre in extent:

Year	Fowls under 6 months old	Fowls over 6 months old	Total Fowls Thousand head	Ducks	Geese	Turkeys
1935 . . . . .	31,551	26,890	58,130	2,481	646	687
1934 . . . . .	33,440	27,890	61,330	2,452	650	788
1933 . . . . .	33,735	27,436	61,171	2,677	661	811
1932 . . . . .	32,130	25,617	57,747	2,632	573	553
1931 . . . . .	29,006	23,558	52,564	2,494	551	529
1930 . . . . .	26,460	21,441	47,901	2,383	604	667
1929 . . . . .	22,424	20,333	42,757	2,243	616	696
1928 . . . . .	20,344	19,572	39,916	2,507	620	593
1927 . . . . .	21,172	18,319	39,491	2,797	653	604
1921 . . . . .	13,114	11,702	24,816	2,391	517	445
1913 . . . . .	15,291	13,735	29,026	2,188	577	652

Last year the rapid rate of increase in the number of fowls which had been a feature of post-war years, was considerably reduced, and in 1935 the total number of fowls declined by 3,200,000 (5.2 %) to 58,130,000, thus bringing the figure below that of 1933. With few exceptions, the decline was general throughout England and Wales and was shared by fowls over and under six months old.

Unlike other classes of poultry, the number of ducks showed a rise of 29,000 (1.2 %) to 2,481,000. A further small decline occurred in the number of geese of 4,000 (0.6 %) bringing the total number down to 646,000. In the case of turkeys the decrease amounted to 101,000 (12.8 %) giving a total of 687,000.

### Wool Production in England and Wales.

Provisional estimates of the wool production of England and Wales in 1935 are given in the following table with comparable figures for earlier years.

Year	Total clip (greasy basis)	Skin wool (greasy basis)	Total production
(millions of pounds)			
1935 . . . . .	55	24	79
1934 . . . . .	56	29	85
1933 . . . . .	63	27	90
1932 . . . . .	66	23	89
1931 . . . . .	62	20	82
1930 . . . . .	57	22	79
1929 . . . . .	58	23	81
1928 . . . . .	59	24	83
1927 . . . . .	62	22	84
1926 . . . . .	62	19	81

The wool clip of 1935, on the basis of the results of the Census of 1930-31 and the provisional returns of the numbers of sheep in England and Wales on 4 June 1935, may be estimated at about 55 million lb. This estimate is one million lb. less than the 1934 estimate, which was the lowest of the past ten years and reflects the decline of the sheep population which has been apparent since 1932. The decline in the sheep population may be attributed to the heavy slaughterings in the years ending May 1933 and 1934 when the production of skin wool is estimated to have been 27 million lb. and 29 million lb. respectively. In the year ended May 1935, however, the number of sheep and lambs slaughtered is provisionally estimated to have been about equal to the average of the five years ended May 1932 and the production of skin wool in the year ended May 1935, estimated at 24 million lb., although 5 million lb. and 3 million lb., respectively, lower than in the two previous years, was one million lb. in excess of the estimate for the year ended May 1932. The total production of wool, at 79 million lb., was 6 million lb. less than last year and is the smallest estimate since 1930.

### Livestock in Greece.

In the following table figures are given showing the numbers of livestock in Greece at the end of the year 1934 compared with the figures for the corresponding period in each of the last ten years.

Year	Cattle	Horses	Asses	Mules	Sheep	Goats	Pigs	Buffaloes	Rabbits
1934 . . . . .	950,270	346,589	380,114	171,308	7,910,059	5,206,494	584,037	52,980	586,501
1933 . . . . .	913,513	341,165	374,480	169,473	7,427,129	4,951,584	506,807	50,471	561,626
1932 . . . . .	875,275	324,234	363,705	160,388	6,926,960	4,677,525	471,740	45,782	463,620
1931 . . . . .	867,612	325,294	352,862	159,507	7,071,725	4,625,990	422,521	45,885	403,594
1930 . . . . .	837,175	316,901	343,271	153,870	6,799,067	4,637,386	335,407	43,732	317,250
1929 . . . . .	831,059	323,339	380,648	147,817	5,805,646	4,179,214	275,684	43,001	97,805
1928 . . . . .	910,203	290,306	342,870	149,610	6,920,361	4,919,118	418,524	44,680	314,466
1927 . . . . .	908,585	276,741	328,152	135,299	6,441,830	4,579,199	452,595	38,558	292,216
1926 . . . . .	924,752	280,522	318,861	147,601	6,950,541	4,669,489	509,636	38,762	276,363
1925 . . . . .	854,230	269,510	299,233	138,037	6,636,433	4,103,136	451,561	36,233	208,329
1924 . . . . .	844,452	258,934	282,851	138,730	6,622,917	4,169,281	390,382	19,293	224,482

Health of live stock and feeding conditions were both satisfactory in 1934. The numbers of diseased animals and of deaths resulting from disease, though greater for certain species than in 1933, were appreciably smaller than those of 1932.

It is interesting to observe that foot-and-mouth disease, which had caused a large number of deaths among cattle and pigs in 1932, was completely absent in 1934.

Production of fodder crops was slightly smaller than last year but this was supplemented by a good yield in pastures and meadows.

It is necessary to add the following additional measures recently introduced to the many governmental provisions of recent years which are intended to assist stock-rearing and which were dealt with in the *Crop Report* of last July: (1) the encouragement of new co-operative dairy societies in order to introduce more rational and modern methods of stock-raising side by side with the widespread nomadic rearing; (2) the grant of a five year moratorium to breeders in the hire of pasture; (3) the encouragement of home production of live stock products, etc.

Nevertheless, the predominance of the nomadic type of stock-raising subject to natural influences prevents a more rapid and constant increase than that achieved in recent years.

The attempts made by the Government in 1932 to protect stock-raising by the restriction of imports of live animals and live stock products have not met with success. The increase in the cost of living and especially in the price of food led the Government to allow every freedom for the importation of these goods. Consequently, imports of live animals in 1933, 1934 and the first half of 1935 again reached the 1931 level.

However, as a result of the work of the new co-operative dairy societies, domestic manufacture of live stock products is steadily progressing. The most noticeable increase is to be seen in the production of milk and there is an increase also in the number of dairy cows. Cheese production is also increasing gradually but at a slower rate. The progress of the dairy industry is now best seen in the case of cheese, where as well as a considerable decrease in imports, there have even been some exports since 1933. Imports of butter, sterilised and condensed milk, margarine and other food fats show little change.

The domestic woollen industry made substantial progress, almost doubling the quantity of manufactured tissues in 1934 compared with 1930. Production of domestic wool, however, is still much too small to meet the requirements of the home industry and the latter is still unable to meet the demand of the Greek textile market. Consequently, imports of live sheep, as well as those of yarn and tissue still tend to increase but at a slower pace.

### Pig Population in Czechoslovakia.

The following table shows the numbers of pigs in the various categories on 1 July 1935 and at the same date in each of the three preceding years.

YEARS	Total pigs	CATEGORIES					
		Boars for reproduction	Sows for reproduction (excluding those for fattening)		Other pigs used for reproduction (including sows for fattening)		
			6 months old and under 1 year	1 year old and over	young pigs less than 8 weeks old	Pigs 8 weeks old and under 6 months	Pigs 6 months old and over
1935. . . . .	3,016,294	12,780	158,821	303,017	713,700	1,465,275	362,701
1934. . . . .	3,887,837	13,909	154,686	397,509	1,011,757	1,850,138	459,838
1933. . . . .	3,314,123	13,949	183,700	339,581	845,625	1,574,623	356,645
1932. . . . .	3,082,456	12,687	149,885	311,099	770,354	1,431,531	406,900

After a continuous and substantial increase in the number of pigs in 1933 and 1934, there was a considerable contraction in 1935 amounting to 22.4 %. The declines in the different categories compared with 1934 were as follows: young pigs under 8 weeks, 29.5 %, sows for reproduction 1 year old and above, 23.82, pigs 6 months old and over 21.1 % pigs from 8 weeks to 6 months old 20.8 % and boars for reproduction, 8.1 %. The increase in the case of sows for reproduction from 6 months to 1 year old was only 2.7 %.

### Animal Products in Brazil.

1. - *Meat Production.* — The following are the official figures of meat production in Brazil in 1934 and the three preceding years.

	1934	1933 (million lb)	1932	1931
Beef . . . . .	1,593	1,530	1,229	1,382
Mutton . . . . .	21	21	24	23
Pork . . . . .	390	340	274	302
Goat meat . . . . .	6	6	7	7

These figures indicate that the production of beef and pork in 1934 is appreciably larger than it was in the preceding years while mutton and goat meat, after reaching a record in 1932, declined in the two subsequent years.

2. - *Production of milk, cheese and butter.* — Production of milk and milk products has expanded considerably since 1931 as the following figures show.

	1934	1933	1932	1931
Milk (ooo Imperial gallons) . . .	536,300	524,640	505,940	495,300
(ooo American gallons) . . .	644,050	630,050	607,590	594,810
Cheese (million lb). . . . .	61	49	30	19
Butter (million lb.) . . . . .	267	219	214	130

## Wool Production in New Zealand.

Details of the production of wool in New Zealand in the 12 months ended 30 June 1935 are as follows, all figures being reduced to a greasy basis.

	Million lb
Exports of wool . . . . .	222.3
Exports of wool on skins . . . . .	9.0
Wool used by N. Z. mills . . . . .	7.1
	— — —
	238.4
Increase in stocks held on 30 June 1935, compared with stocks at 30 June 1934. . . . .	37.5
Estimated production, 1934-35 . . . . .	275.9

The estimated production in 1934-35 is 24.6 million lb. smaller than the total for the preceding season.

The decrease is due to the fact that this year shearing generally was commenced and completed earlier than usual owing to the exceptionally dry and warm weather conditions in the late spring and early summer.

## Current information on livestock and derivatives.

*Germany:* According to the provisional estimates, milk production in Germany, excluding the Saar territory, is estimated at about 545,500,000 Imperial gallons (655,000,000 American gallons) of which 521,300,000 Imperial gallons (626,000,000 American gallons) was obtained from cows and 24,200,000 Imperial gallons from goats (29,000,000 American gallons).

*Belgium:* Cattle are still in a good state of health but it is proving difficult to maintain yields owing to the drought.

*Irish Free State:* Fodder supplies are ample for all normal requirements. Milk yields show the usual seasonal decline.

*Great Britain and Northern Ireland:* Milk yields dropped considerably during August owing to the recent drought.

*Netherlands:* Bad weather affected unfavourably the feeding conditions for milk cows. The outlook improved a little in the last days of the month.

Compared with last year's figures, milk production was practically normal in Geldern, Overijssel and South Holland. It increased by 3.5 to 10 % in Drenthe. In other provinces milk yields declined as follows: Friesland, 2 to 3 %, North Brabant, 5 %; North Holland, 7 %; Groningen, 5 to 10 %; Limburg, 10 %, Utrecht and Zeeland, 10 to 15 %.

*Argentina:* (telegram of 26 September): The condition of live stock is good.

*Brazil:* According to the figures of the Brazilian Ministry of Agriculture, the production of wool in 1934 was 36,376,000 lb., compared with 35,274,000 lb. in 1933 and 33,731,000 lb. in 1932.

*Algeria:* Owing to the continuous drought, the scarcity of grass in pastures and reduced reserves of water the situation at the end of August had become very difficult, particularly for cattle. Sheep up to this time had maintained a fairly good condition. Of rains do not fall soon the live stock situation as a whole may become critical.

*French Morocco:* At the end of August stubble formed the only feed for animals. The persistent drought resulted in abnormally low levels in the watertable and *wadi* and caused concern in the south. The condition of animals, however, was still fairly good at the end of August in the country as a whole.

*Tunisia:* Though pastures were still dry, herds were able to find sufficient feeding in most parts at the end of August. The persistent drought however, has brought about a critical situation in some central and northern areas.

*Union of South Africa:* With the exception of some areas in the Cape Province very little rain fell in the Union during the month of July. Rain is needed very badly in most districts of the Transvaal and in several districts of this province there was a serious scarcity of water and grazing. Rain is needed also in Natal, Orange Free State and parts of the Cape Province.

Grazing, nevertheless, was relatively plentiful throughout the Union, but, with the exception of that in parts of the Cape Province, it was of little nutritive value. The reaped maize lands were, however, providing good feed for stock, and, on the whole, the animals were in fair to good condition.

Prospects for the wool clip are good, and conditions for the lambing season continued to be favourable in most parts of the Union. Lambs were doing well, although some losses were suffered owing to extreme cold.

Probably, chiefly as a result of the exceptionally cold winter and heavy frosts experienced practically throughout the Union, insect pests and stock diseases have decreased everywhere and in some districts disease amongst stock is practically non-existent.

## TRADE

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	220	2,000	0	0	—	—
Hungary	214	88	0	0	6,526	15,496	0	0	—	—
Lithuania	4	0	0	0	584	0	0	0	—	—
Poland	606	688	0	0	1,274	1,596	9	507	—	—
Romania	478	0	0	0	2,538	141	4	11	—	—
Yugoslavia	18	126	0	0	2,500	553	2	0	—	—
U. S. S. R.	...	...	...	...	1) 1,257	1) 19,224	2) 814	2) 0	—	—
Canada	5,494	7,787	0	0	86,627	101,960	2	7	—	—
United States	40	500	904	432	1,462	11,775	15,540	6,757	—	—
Argentina	6,508	9,908	—	—	105,860	84,770	—	—	—	—
Chile	2	203	15	0	659	586	410	765	—	—
Syria and Lebanon	24	13	0	13	278	423	18	198	—	—
Algeria	...	...	...	...	1) 6,621	1) 5,878	1) 311	1) 280	—	—
French Morocco	170	789	0	0	4,489	4,674	0	0	—	—
Tunisia	...	...	...	...	1) 1,625	1) 809	1) 181	1) 1,109	—	—
Australia	2,754	3,406	0	0	44,924	36,090	0	0	—	—
New Zealand	...	...	...	...	1) 0	1) 181	1) 20	1) 106	—	—
<i>Importing Countries:</i>										
Germany	0	534	159	1,874	121	12,516	7,083	17,148	—	—
Austria	0	0	659	505	0	0	4,802	4,872	—	—
Belgium	68	119	2,019	2,048	1,742	1,459	25,450	26,905	—	—
Denmark	0	0	631	877	31	9	10,763	6,764	—	—
Spain	0	0	0	0	0	0	0	0	—	—
Estonia	2	0	0	0	121	0	0	0	—	—
Irish Free State	0	0	774	935	0	0	9,420	10,280	—	—
Finland	0	0	150	128	0	0	1,338	1,098	—	—
France	1,290	578	1,305	1,378	22,688	1,905	15,278	16,325	—	—
Gr. Brit. and N. Irel.	106	44	9,515	10,311	827	783	113,179	120,064	—	—
Greece	0	0	847	196	0	0	8,684	6,285	—	—
Italy	0	0	1,537	655	9	7	12,353	10,077	—	—
Latvia	...	...	...	...	1) 293	1) 0	1) 0	1) 0	—	—
Norway	0	0	265	306	0	0	3,907	3,761	—	—
Netherlands	46	7	875	794	811	1,303	11,202	13,649	—	—
Portugal	—	—	44	42	—	—	207	384	—	—
Sweden	461	366	53	66	1,973	375	902	1,089	—	—
Switzerland	0	0	1,155	915	2	7	10,750	10,558	—	—
Czechoslovakia	0	0	148	0	4	4	849	88	—	—
Ceylon	—	—	0	0	—	—	33	9	—	—
China	15	29	425	0	289	185	10,889	11,202	—	—
India	4	2	0	66	247	44	101	165	—	—
Japan	—	—	758	635	—	—	10,878	9,811	—	—
Egypt	...	...	...	...	1) 51	1) 9	1,257	1) 7	—	—
Union of South Afr.	...	...	...	...	1) 2	1) 0	529	1) 31	—	—
<b>Totals</b>	<b>18,304</b>	<b>25,187</b>	<b>22,238</b>	<b>22,176</b>	<b>296,655</b>	<b>304,762</b>	<b>277,165</b>	<b>280,312</b>	<b>—</b>	<b>—</b>
<b>Rye. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	0	154	128	2	51	6,945	5,393	2,209	—	—
Bulgaria	0	0	0	0	0	18	0	0	—	—
Estonia	123	0	0	0	783	0	22	0	—	—
Hungary	7	0	0	0	728	3,455	0	0	—	—
Latvia	...	...	...	...	1) 1,911	1) 0	1) 0	1) 0	—	—
Lithuania	4	0	0	0	1,199	49	0	0	—	—
Poland	284	317	0	0	11,671	10,479	0	229	—	—
Romania	0	0	0	0	0	0	0	0	—	—
Sweden	51	42	0	0	2,000	42	22	31	—	—
U. S. S. R.	...	...	—	—	1) 547	1) 3,280	—	—	—	—
Canada	119	0	0	0	666	1,444	11	0	—	—
Argentina	218	225	—	—	5,882	2,178	—	—	—	—
Algeria	...	...	...	...	1) 24	1) 15	1) 0	1) 0	—	—
<i>Importing Countries:</i>										
Austria	0	0	64	9	0	0	1,779	172	—	—
Belgium	18	0	71	108	31	11	1,797	4,813	—	—
Denmark	0	0	304	220	4	0	4,090	5,864	—	—
Finland	0	0	152	75	0	0	450	1,173	—	—
France	0	0	2	2	4	0	35	73	—	—
Italy	0	0	11	15	0	0	179	126	—	—
Norway	0	0	201	265	0	0	2,535	3,201	—	—
Netherlands	0	0	207	161	227	7	1,854	5,110	—	—
Switzerland	0	0	9	7	0	0	161	137	—	—
Czechoslovakia	0	0	0	2	4	18	20	20	—	—
United States	0	0	201	571	0	9	5,917	7,055	—	—
<b>Total</b>	<b>824</b>	<b>738</b>	<b>1,350</b>	<b>1,437</b>	<b>25,732</b>	<b>27,950</b>	<b>24,265</b>	<b>30,213</b>	<b>—</b>	<b>—</b>

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat flour. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	42	454	0	4	659	5,578	73	55	—	—
Bulgaria	0	2	0	0	0	93	0	0	—	—
Spain	0	0	0	0	0	31	0	0	—	—
France	216	254	88	86	4,266	4,149	1,543	937	—	—
Hungary	26	15	0	0	809	1,466	0	0	—	—
Italy	251	243	2	7	3,748	3,847	95	311	—	—
Lithuania	0	0	0	0	0	22	0	0	—	—
Poland	161	11	0	0	750	282	0	0	—	—
Romania	0	0	0	0	0	7	0	0	—	—
Yugoslavia	4	0	0	0	40	55	0	0	—	—
U. S. S. S.	—	—	—	—	558	655	205	205	—	—
Canada	774	800	15	49	9,310	10,690	390	176	—	—
United States	485	560	0	0	7,637	7,582	9	2	—	—
Argentina	212	205	—	—	2,132	2,447	—	—	—	—
Chile	2	4	11	9	49	29	66	55	—	—
India	40	13	0	0	309	260	4	27	—	—
Japan	443	390	22	0	7,203	5,569	99	95	—	—
Algeria	—	—	—	—	862	805	1	11	—	—
French Morocco	0	2	0	0	51	49	0	0	—	—
Tunisia	—	—	—	—	597	187	62	247	—	—
Australia	1,279	860	0	0	14,376	10,922	2	0	—	—
<i>Importing Countries:</i>										
Austria	0	0	35	33	2	0	774	992	—	—
Belgium	7	2	4	20	51	42	148	287	—	—
Denmark	2	2	42	55	18	13	474	580	—	—
Estonia	0	0	0	0	0	0	0	0	—	—
Irish Free State	0	0	42	71	0	0	527	1,091	—	—
Finland	0	0	77	99	0	0	849	1,146	—	—
Gr. Brit. and N. Irel.	247	243	836	1,107	3,400	3,245	9,103	11,696	—	—
Greece	0	0	2	0	0	2	33	13	—	—
Norway	0	0	117	73	4	4	999	930	—	—
Netherlands	0	0	90	64	9	7	908	880	—	—
Portugal	—	—	4	11	—	—	150	137	—	—
Sweden	0	0	0	0	0	0	2	4	—	—
Czechoslovakia	0	0	2	4	4	7	20	22	—	—
Ceylon	—	—	22	24	—	—	1,499	386	—	—
China	0	20	93	55	57	165	388	1,316	—	—
Indo-China	—	—	40	26	—	—	1,074	985	—	—
Java and Madura	—	—	—	—	—	—	101	888	—	—
Syria and Lebanon	4	4	0	11	62	77	68	93	—	—
Egypt	—	—	—	—	0	0	1	9	—	—
Union of South Afr.	—	—	—	—	2	0	11	9	—	—
New Zealand	—	—	—	—	2	2	209	187	—	—
<b>Totals</b>	<b>4,195</b>	<b>4,084</b>	<b>1,544</b>	<b>1,808</b>	<b>56,967</b>	<b>58,289</b>	<b>20,334</b>	<b>23,892</b>		
<b>Barley. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	522	0	0	—	—
Spain	0	0	0	0	0	44	0	0	—	—
Hungary	0	22	0	0	93	1,093	24	0	—	—
Lithuania	0	0	0	0	176	0	0	0	—	—
Poland	278	229	0	0	7,180	3,538	0	0	—	—
Romania	150	474	0	0	4,198	14,654	0	4	—	—
Czechoslovakia	31	0	0	0	1,140	1,116	2	2	—	—
Yugoslavia	0	13	0	0	538	176	0	0	—	—
U. S. S. R.	—	—	—	—	3,120	10,728	—	—	—	—
Canada	527	238	0	0	7,227	820	0	0	—	—
United States	262	75	174	150	2,132	2,531	5,291	165	—	—
Argentina	399	699	—	—	9,588	11,680	—	—	—	—
Chile	13	386	0	0	1,217	2,004	0	0	—	—
India	0	0	4	2	392	2	13	95	—	—
Algeria	—	—	—	—	1,155	1,111	739	465	—	—
Egypt	—	—	—	—	0	139	18	0	—	—
French Morocco	172	414	0	0	5,706	2,635	0	0	—	—
Australia	53	130	0	0	1,380	1,407	0	0	—	—
<i>Importing Countries:</i>										
Germany	0	0	170	545	2	2	10,498	7,648	—	—
Austria	0	0	82	223	0	0	1,574	2,584	—	—
Belgium	2	57	342	496	454	655	8,481	9,017	—	—
Denmark	0	26	139	159	1,398	977	1,030	1,314	—	—
Irish Free State	0	0	2	0	4	11	256	212	—	—
France	0	0	267	304	2	0	3,982	3,840	—	—
Gr. Brit. and N. Irel.	0	0	1,089	1,012	9	26	14,315	20,322	—	—
Greece	0	0	0	0	0	0	77	4	—	—
Italy	0	0	90	57	0	0	1,847	1,120	—	—
Norway	0	0	11	0	2	0	168	293	—	—
Netherlands	0	0	401	899	194	26	5,913	11,543	—	—
Switzerland	0	0	165	209	0	0	2,696	2,412	—	—
Syria and Lebanon	4	0	0	7	139	93	44	216	—	—
Tunisia	—	—	—	—	201	79	1,008	575	—	—
<b>Totals</b>	<b>1,891</b>	<b>2,763</b>	<b>2,936</b>	<b>4,063</b>	<b>47,647</b>	<b>56,069</b>	<b>57,976</b>	<b>61,831</b>		



COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1, July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Oats. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Irish Free State . . . . .	0	0	0	0	0	20	0	0	—	—
Hungary . . . . .	0	0	0	0	0	761	0	0	—	—
Lithuania . . . . .	0	0	0	0	212	2	0	0	—	—
Poland . . . . .	55	37	0	0	994	304	0	0	—	—
Romania . . . . .	4	0	0	0	68	505	0	0	—	—
Czechoslovakia . . . . .	22	0	0	0	53	741	2	0	—	—
Yugoslavia . . . . .	4	29	0	0	280	112	0	0	—	—
Canada . . . . .	364	291	0	0	4,965	2,070	0	2	—	—
United States . . . . .	35	4	9	49	150	123	4,824	71	—	—
Argentina . . . . .	280	919	—	—	13,342	7,117	—	—	—	—
Chile . . . . .	157	258	0	0	1,243	1,532	0	0	—	—
Tunisia . . . . .	—	—	—	—	410	37	0	22	—	—
Australia . . . . .	7	2	0	0	265	33	2	2	—	—
<i>Importing Countries:</i>										
Germany . . . . .	0	2	179	4	13	1,931	4,797	97	—	—
Austria . . . . .	0	0	57	117	0	0	287	450	—	—
Belgium . . . . .	0	0	117	119	0	0	432	390	—	—
Denmark . . . . .	0	0	53	24	657	26	884	373	—	—
Estonia . . . . .	0	0	0	0	15	0	0	0	—	—
Finland . . . . .	0	0	0	44	2	9	11	549	—	—
France . . . . .	0	0	55	35	33	179	425	236	—	—
Gr. Brit. and N. Irel. . . . .	4	4	489	227	20	20	3,488	4,894	—	—
Italy . . . . .	0	0	238	185	0	0	4,610	2,811	—	—
Latvia . . . . .	—	—	—	—	0	0	0	2	—	—
Norway . . . . .	0	0	44	0	0	4	64	2	—	—
Netherlands . . . . .	0	0	97	42	11	20	873	1,142	—	—
Sweden . . . . .	0	0	2	7	37	9	24	915	—	—
Switzerland . . . . .	0	0	271	317	0	0	4,354	4,780	—	—
Algeria . . . . .	—	—	—	—	128	53	126	276	—	—
<b>Totals . . . . .</b>	<b>932</b>	<b>1,546</b>	<b>1,611</b>	<b>1,170</b>	<b>22,898</b>	<b>15,608</b>	<b>25,203</b>	<b>17,008</b>		
<b>Maize. — Thousand centals (1 cental = 100 lb.).</b>										
					NINE MONTHS (November 1-July 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
<i>Exporting Countries:</i>										
Bulgaria . . . . .	0	53	0	0	399	1,865	0	0	2,564	0
Hungary . . . . .	0	35	419	0	130	884	926	0	1,056	0
Romania . . . . .	1,351	198	0	0	8,371	7,778	0	2	10,115	2
Yugoslavia . . . . .	613	911	0	0	10,573	8,561	0	2	11,810	2
United States . . . . .	4	265	3,164	13	220	1,843	13,944	123	2,401	763
Argentina . . . . .	17,253	13,944	—	—	99,931	95,941	—	—	128,166	—
Java and Madura . . . . .	37	2	—	—	1,347	911	—	—	924	—
Indo-China . . . . .	553	776	—	—	6,063	4,456	—	—	8,439	—
Syria and Lebanon . . . . .	0	0	0	0	2	0	7	66	0	66
Egypt . . . . .	—	—	—	—	0	0	20	13	2	20
Union of South Afr. . . . .	68	0	—	—	6,660	0	0	421	3,693	432
<i>Importing Countries:</i>										
Germany . . . . .	0	0	474	844	0	0	7,088	5,031	0	7,452
Austria . . . . .	0	0	697	664	0	2	7,855	8,184	2	10,448
Belgium . . . . .	24	51	1,552	1,508	569	417	11,360	11,843	822	16,824
Denmark . . . . .	0	0	1,459	527	0	0	4,061	2,791	0	4,586
Spain . . . . .	0	0	57	179	0	0	4,062	1,027	0	1,911
Irish Free State . . . . .	0	0	694	952	0	0	4,440	4,462	0	6,543
Finland . . . . .	0	0	88	57	0	0	452	1,193	0	1,312
France . . . . .	0	2	780	690	9	20	11,200	10,271	22	13,607
Gr. Brit. and N. Irel. . . . .	287	375	6,821	3,975	1,702	1,590	45,914	47,411	2,116	66,597
Greece . . . . .	0	0	101	0	0	0	827	31	0	37
Italy . . . . .	0	0	794	791	2	2	2,538	2,939	2	3,874
Norway . . . . .	0	0	282	295	0	0	1,731	2,187	0	3,084
Netherlands . . . . .	0	0	1,579	1,171	0	13	14,586	16,193	13	22,011
Poland . . . . .	0	0	0	0	0	0	0	57	0	60
Portugal . . . . .	—	—	13	185	—	—	450	1,164	—	1,669
Sweden . . . . .	0	0	190	108	0	0	529	2,912	0	3,106
Switzerland . . . . .	0	0	130	181	0	0	1,235	1,336	0	1,792
Czechoslovakia . . . . .	0	0	240	1,382	0	0	2,057	4,365	0	5,150
Canada . . . . .	0	0	617	346	4	2	3,272	2,866	2	4,090
Japan . . . . .	—	—	399	0	—	—	412	2	—	2
Tunisia . . . . .	—	—	—	—	2	0	55	101	4	101
<b>Totals . . . . .</b>	<b>20,190</b>	<b>16,612</b>	<b>20,550</b>	<b>13,868</b>	<b>135,984</b>	<b>124,287</b>	<b>135,451</b>	<b>127,013</b>	<b>172,153</b>	<b>175,541</b>

1) See notes page 730.

COUNTRIES	JULY				SEVEN MONTHS (January 1-July 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Rice. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Spain . . . . .	4	93	0	0	379	284	0	0	1,010	0
Italy . . . . .	110	251	7	0	1,512	1,852	46	18	3,519	44
United States . . . . .	57	79	13	60	977	628	425	328	917	558
Brazil . . . . .	...	...	...	...	1) 604	1) 300	...	...	734	...
India . . . . .	1,997	2,165	201	467	27,741	22,802	2,143	3,803	31,242	8,852
Indo-China . . . . .	2,255	2,773	...	...	28,380	19,518	1) 7	1) 2	28,462	1) 2
Slam . . . . .	...	...	...	...	1) 17,842	1) 19,251	...	...	43,202	...
Egypt . . . . .	...	...	...	...	1) 578	1) 1,078	1) 13	1) 4	1,508	9
<i>Importing Countries:</i>										
Germany . . . . .	37	84	392	578	245	403	2,416	3,120	745	6,341
Austria . . . . .	0	0	55	49	0	0	381	366	0	633
Belgium . . . . .	4	9	71	139	24	66	525	816	97	1,446
Denmark . . . . .	0	0	2	15	0	0	60	82	0	137
Estonia . . . . .	—	—	2	2	—	—	7	9	—	15
Irish Free State . . . . .	0	0	11	4	0	0	42	40	2	57
France . . . . .	31	20	708	1,554	401	448	5,631	8,726	661	14,171
Gr. Brit. and N. Irel. . . . .	7	24	498	247	106	106	2,116	1,991	174	2,862
Greece . . . . .	0	0	62	44	0	0	340	304	0	313
Hungary . . . . .	0	0	22	57	0	0	183	236	0	448
Latvia . . . . .	...	...	...	...	1) 0	1) 0	1) 4	1) 4	0	11
Lithuania . . . . .	0	0	...	2	0	0	0	9	0	15
Norway . . . . .	0	0	7	4	0	0	73	64	0	106
Netherlands . . . . .	148	181	163	534	1,151	1,034	1,830	2,407	2,013	3,629
Poland . . . . .	24	18	218	337	79	82	899	688	157	974
Portugal . . . . .	—	—	115	73	—	—	287	373	—	575
Sweden . . . . .	—	—	4	33	—	—	168	161	—	223
Switzerland . . . . .	0	0	44	26	0	0	256	203	0	397
Czechoslovakia . . . . .	0	0	115	258	0	0	778	761	0	1,497
Yugoslavia . . . . .	0	0	29	31	0	0	227	218	0	439
Canada . . . . .	0	0	84	46	2	2	547	569	4	732
Chile . . . . .	—	—	26	24	—	—	143	150	—	340
Ceylon . . . . .	0	0	1,065	807	2	2	7,117	6,433	4	10,977
China . . . . .	2	2	2,055	1,025	55	137	26,718	10,831	150	17,000
Java and Madura . . . . .	9	4	...	...	13	55	2,460	95	132	1,356
Japan . . . . .	7	26	51	0	635	1,285	128	64	1,457	152
Syria and Lebanon . . . . .	0	0	13	26	0	0	23	273	0	428
Algeria . . . . .	...	...	...	...	1) 2	1) 4	29	313	9	355
Tunisia . . . . .	...	...	...	...	1) 0	1) 0	20	42	0	57
Union of South Afr. . . . .	...	...	...	...	1) 0	1) 0	507	608	0	1,184
Australia . . . . .	15	26	2	4	148	141	29	37	244	49
New Zealand . . . . .	...	...	...	...	1) 0	1) 0	46	51	0	73
<b>Totals . . . . .</b>	<b>4,705</b>	<b>5,755</b>	<b>6,035</b>	<b>6,446</b>	<b>80,876</b>	<b>69,478</b>	<b>56,898</b>	<b>44,199</b>	<b>116,443</b>	<b>76,457</b>
<b>Linseed. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Lithuania . . . . .	9	0	0	0	88	49	0	0	141	0
Argentina . . . . .	2,718	1,845	—	—	25,155	19,068	—	—	30,303	—
India . . . . .	117	454	0	0	1,336	3,525	0	0	6,175	0
Tunisia . . . . .	...	...	...	...	1) 0	1) 0	1) 0	1) 2	0	2
<i>Importing Countries:</i>										
Germany . . . . .	0	0	60	419	0	2	2,590	5,040	2	6,986
Belgium . . . . .	0	2	137	104	82	46	1,473	1,078	68	1,790
Denmark . . . . .	—	—	26	33	—	—	337	243	—	359
Spain . . . . .	—	—	26	7	—	—	218	152	—	366
Estonia . . . . .	0	0	0	0	2	2	4	4	15	4
Finland . . . . .	0	0	2	0	0	0	46	77	0	104
France . . . . .	0	0	456	326	2	4	3,461	3,585	7	5,243
Gr. Brit. and N. Irel. . . . .	0	0	547	309	2	2	3,179	2,835	15	4,123
Greece . . . . .	0	0	15	13	0	0	64	62	0	112
Hungary . . . . .	0	0	0	0	4	4	0	0	13	0
Italy . . . . .	0	0	86	106	0	0	917	840	0	1,422
Latvia . . . . .	...	...	...	...	1) 49	1) 29	1) 36	1) 35	79	86
Norway . . . . .	0	0	15	42	0	0	446	280	0	337
Netherlands . . . . .	0	2	251	571	55	51	5,997	3,891	77	7,108
Poland . . . . .	0	0	0	35	0	0	0	161	0	170
Sweden . . . . .	—	—	64	93	—	—	591	672	—	849
Czechoslovakia . . . . .	0	0	18	35	0	0	384	340	0	556
Yugoslavia . . . . .	0	0	2	9	0	0	128	97	0	139
Canada . . . . .	0	0	0	7	0	2	256	256	4	443
United States . . . . .	—	—	1,254	459	—	—	6,292	4,846	—	7,934
Japan . . . . .	0	0	44	15	2	2	351	355	2	434
Australia . . . . .	0	0	44	146	0	0	527	346	0	560
<b>Totals . . . . .</b>	<b>2,844</b>	<b>2,303</b>	<b>3,047</b>	<b>2,729</b>	<b>26,781</b>	<b>22,786</b>	<b>27,207</b>	<b>25,197</b>	<b>36,901</b>	<b>39,127</b>

1) See notes page 730.

COUNTRIES	JULY				SEVEN MONTHS (January-I July 31)				TWELVE MONTHS (January I-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934

<b>Butter. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Austria . . . . .	522	452	2	2	3,212	2,619	9	150	7,053	157
Denmark . . . . .	27,538	29,304	117	0	181,926	203,501	185	9	330,311	20
Estonia . . . . .	3,269	2,824	0	0	12,555	11,823	0	0	22,306	0
Irish Free State . . . . .	13,241	10,823	13	9	37,033	32,816	24	68	56,886	84
Finland . . . . .	1,969	2,709	0	0	13,913	15,937	0	0	24,463	13
Hungary . . . . .	119	701	0	0	2,480	4,418	0	0	8,790	0
Latvia . . . . .	...	...	...	...	16,041	15,629	1)	0	34,615	0
Lithuania . . . . .	3,792	2,961	0	0	13,111	11,828	0	0	21,321	0
Norway . . . . .	0	0	0	0	247	344	0	2	547	2
Netherlands . . . . .	9,301	9,218	9	86	62,237	54,950	229	370	81,320	1,173
Poland . . . . .	1,781	2,482	0	0	4,793	6,100	2	2	9,782	9
Sweden . . . . .	4,813	4,894	0	0	28,678	30,567	2	2	51,152	4
U. S. S. R. . . . .	...	...	...	...	7,311	6,936	...	...	83,562	...
Argentina . . . . .	86	192	...	...	9,661	8,680	...	...	18,345	...
India . . . . .	24	9	60	33	121	108	437	342	212	642
Syria and Lebanon . . . . .	33	42	2	88	333	141	205	472	293	809
Australia . . . . .	6,997	6,682	0	0	157,380	141,328	2	0	246,784	2
New Zealand . . . . .	23,746	14,718	...	...	180,669	176,000	...	...	292,830	...
<i>Importing Countries:</i>										
Germany . . . . .	2	0	10,461	9,154	9	7	88,549	56,983	9	136,165
Belgium . . . . .	7	4	227	293	37	62	7,815	11,169	108	20,629
Spain . . . . .	4	2	4	0	20	71	7	134	15	143
France . . . . .	1,138	611	110	128	5,595	3,964	754	8,907	7,297	9,603
Gr. Brit. and N. Irel. . . . .	1,810	525	102,850	108,133	12,807	8,327	667,950	708,819	12,635	1,086,713
Greece . . . . .	...	...	106	93	...	...	448	289	...	690
Italy . . . . .	40	22	84	355	216	220	659	3,159	276	3,801
Switzerland . . . . .	0	0	15	13	2	0	106	615	0	653
Czechoslovakia . . . . .	0	0	201	86	0	22	1,962	1,482	22	2,229
Canada . . . . .	40	44	22	7	245	214	64	2,815	428	2,673
United States . . . . .	260	101	176	68	946	915	21,663	412	1,321	1,164
Ceylon . . . . .	...	...	46	55	...	...	529	459	...	681
Java and Madura . . . . .	...	...	...	...	...	...	5,289	5,785	...	10,313
Japan . . . . .	...	...	0	4	...	...	13	37	...	64
Egypt . . . . .	...	...	...	...	112	51	529	392	82	789
Tunisia . . . . .	...	...	...	...	11	2	1,133	1,127	22	2,114
<b>Totals . . . . .</b>	<b>100,532</b>	<b>89,320</b>	<b>114,505</b>	<b>118,607</b>	<b>751,701</b>	<b>737,516</b>	<b>798,629</b>	<b>803,999</b>	<b>1,312,787</b>	<b>1,281,539</b>

<b>Cheese. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	265	236	0	0	1,742	719	0	0	2,652	0
Denmark . . . . .	853	1,235	0	2	7,544	7,945	20	18	13,891	73
Finland . . . . .	425	551	4	0	4,905	4,109	9	9	8,523	40
Italy . . . . .	2,571	2,549	1,157	1,107	30,576	31,013	6,292	6,074	55,248	10,214
Lithuania . . . . .	2	75	0	0	450	1,120	2	0	2,200	2
Norway . . . . .	174	346	11	9	1,607	2,306	134	99	4,418	214
Netherlands . . . . .	11,590	12,200	60	448	76,728	77,380	414	875	134,892	1,455
Poland . . . . .	33	582	22	40	534	1,579	187	362	3,926	531
Switzerland . . . . .	4,279	2,822	209	390	23,049	22,196	1,874	2,954	39,143	5,353
Czechoslovakia . . . . .	110	183	302	220	908	937	1,479	1,543	1,995	2,628
Yugoslavia . . . . .	690	723	2	2	1,859	1,775	31	26	4,045	57
Canada . . . . .	5,362	7,835	132	60	9,515	13,794	642	505	61,167	946
Australia . . . . .	223	485	11	7	9,132	4,967	35	37	12,467	77
New Zealand . . . . .	5,875	14,006	0	0	118,539	140,755	0	0	222,266	2
<i>Importing Countries:</i>										
Germany . . . . .	35	117	5,384	7,308	465	1,197	34,584	43,713	2,114	74,488
Austria . . . . .	620	300	163	150	4,303	1,920	1,146	1,151	3,860	1,720
Belgium . . . . .	22	22	4,420	3,761	148	254	28,052	25,316	353	47,818
Spain . . . . .	11	11	139	179	79	95	1,418	1,283	123	2,482
Irish Free State . . . . .	51	22	4	2	201	88	40	35	514	64
France . . . . .	1,459	1,422	2,379	3,752	14,610	14,747	19,507	19,553	25,973	35,173
Gr. Brit. and N. Irel. . . . .	414	450	23,206	28,087	3,146	3,236	181,816	201,468	5,968	334,718
Greece . . . . .	0	71	95	11	126	871	899	128	1,144	295
Hungary . . . . .	46	2	0	0	141	53	2	0	176	0
Portugal . . . . .	...	...	24	37	...	...	201	192	...	525
Sweden . . . . .	...	...	62	44	...	...	657	567	...	1,248
United States . . . . .	119	115	2,831	3,212	785	809	26,736	26,204	1,512	47,532
India . . . . .	0	0	75	73	2	2	628	538	4	1,151
Java and Madura . . . . .	...	...	...	...	...	...	855	825	...	1,656
Syria and Lebanon . . . . .	24	93	2	33	340	223	560	597	534	1,221
Algeria . . . . .	...	...	...	...	77	62	5,939	5,730	119	11,288
Egypt . . . . .	...	...	...	...	35	51	3,336	2,754	126	6,537
Tunisia . . . . .	...	...	...	...	29	73	1,380	1,464	86	2,959
<b>Totals . . . . .</b>	<b>35,253</b>	<b>46,453</b>	<b>40,694</b>	<b>48,934</b>	<b>311,575</b>	<b>334,276</b>	<b>318,875</b>	<b>344,020</b>	<b>609,439</b>	<b>592,467</b>

1) 2) See notes page 730.

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Cotton. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
United States . . . . .	1,585	1,720	33	55	26,542	40,960	536	747	—	—
Argentina . . . . .	119	101	—	—	694	450	—	—	—	—
Brazil . . . . .	—	—	—	—	3,285	1,122	—	—	—	—
India . . . . .	747	1,254	148	115	12,553	12,110	1,850	974	—	—
Egypt . . . . .	—	—	—	—	7,507	8,453	—	—	—	—
<i>Importing Countries:</i>										
Germany . . . . .	84	93	650	586	966	1,235	6,391	9,539	—	—
Austria . . . . .	0	0	44	49	4	2	672	664	—	—
Belgium . . . . .	40	40	192	117	710	553	2,068	1,768	—	—
Denmark . . . . .	—	—	20	18	—	—	185	190	—	—
Spain . . . . .	2	2	170	117	51	33	2,161	2,412	—	—
Estonia . . . . .	0	0	13	7	0	0	117	88	—	—
Finland . . . . .	0	0	20	13	4	2	287	249	—	—
France . . . . .	33	64	366	265	620	421	5,055	7,094	—	—
Gr. Brit. and N. Irel . . . . .	53	40	1,687	904	710	606	12,170	14,266	—	—
Greece . . . . .	0	0	22	11	11	0	165	163	—	—
Hungary . . . . .	0	0	42	46	0	0	489	509	—	—
Italy . . . . .	0	0	170	240	2	9	3,501	4,716	—	—
Latvia . . . . .	—	—	—	—	0	0	106	101	—	—
Norway . . . . .	0	—	4	2	0	0	64	53	—	—
Netherlands . . . . .	0	0	55	75	4	7	847	988	—	—
Poland . . . . .	0	0	141	101	9	4	1,437	1,519	—	—
Portugal . . . . .	—	—	26	33	—	—	448	498	—	—
Sweden . . . . .	—	—	55	49	—	—	624	661	—	—
Switzerland . . . . .	0	0	33	51	2	0	564	597	—	—
Czechoslovakia . . . . .	7	11	117	128	73	97	1,554	1,845	—	—
Yugoslavia . . . . .	0	0	33	29	0	0	320	289	—	—
Canada . . . . .	—	—	99	84	—	—	1,241	1,506	—	—
China . . . . .	15	22	90	194	384	767	1,640	2,835	—	—
Japan . . . . .	24	33	1,393	1,477	595	384	17,430	17,163	—	—
Algeria . . . . .	—	—	—	—	4	2	4	11	—	—
<b>Totals</b> . . . . .	<b>2,709</b>	<b>3,380</b>	<b>5,623</b>	<b>4,764</b>	<b>54,730</b>	<b>67,217</b>	<b>61,920</b>	<b>71,445</b>	—	—

**Wool. — (Thousand lb.).**

COUNTRIES	ELEVEN MONTHS (September 1-July 31)				TWELVE MONTHS (Sept 1-August 31)			
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34
<i>Exporting Countries:</i>								
Irish Free State . . . . .	1,371	838	9	108	11,647	15,631	631	624
Hungary . . . . .	357	2,588	143	198	1,687	3,893	3,236	2,037
Argentina . . . . .	13,197	7,229	—	—	259,893	252,765	—	—
Chile . . . . .	3,272	915	—	—	29,205	15,340	—	—
India . . . . .	2,621	456	13	0	21,729	26,504	212	0
Syria and Lebanon . . . . .	5,483	2,981	337	392	48,460	52,722	7,011	4,235
Algeria . . . . .	280	183	0	0	5,542	4,204	82	306
Egypt . . . . .	—	—	—	—	6,208	7,386	1,964	1,938
Un. of S. Africa . . . . .	2,266	2,141	—	—	2,544	2,158	49	51
Australia . . . . .	30,999	4,846	201	163	213,005	226,069	57	0
New Zealand . . . . .	7,763	3,680	42	4	7,094	5,999	1,329	1,418
Totals . . . . .	5,348	1,806	—	—	806,046	697,106	3,516	7,011
<i>Importing Countries:</i>								
Germany . . . . .	295	655	10,119	6,964	5,624	2,114	226,067	280,830
Austria . . . . .	97	159	3,497	2,017	2,048	5,692	52,519	60,879
Belgium . . . . .	9	146	1,409	273	1,027	470	16,980	17,670
Denmark . . . . .	8,173	5,031	22,752	9,864	96,225	93,428	211,296	169,990
Spain . . . . .	1,581	807	410	209	18,497	23,288	3,931	5,304
Finland . . . . .	26	11	423	238	337	190	4,500	4,694
France . . . . .	110	93	714	425	2,696	3,990	10,353	5,346
Gr. Brit. and N. Irel . . . . .	0	22	448	428	220	44	4,923	5,251
Greece . . . . .	4,892	3,164	44,106	19,822	41,286	48,508	344,859	362,384
Italy . . . . .	21,301	20,840	57,883	33,914	290,672	343,907	797,245	820,371
Norway . . . . .	130	187	1,239	505	675	1,268	7,066	4,052
Netherlands . . . . .	40	42	11,521	5,935	628	1,074	81,955	138,387
Poland . . . . .	77	93	165	207	1,175	3,730	12,849	20,137
Sweden . . . . .	141	119	461	500	1,237	1,660	2,099	2,141
Switzerland . . . . .	86	26	794	245	2,919	4,403	6,074	8,671
Czechoslovakia . . . . .	13	42	3,567	1,856	1,435	1,307	7,423	6,171
Yugoslavia . . . . .	—	—	1,008	1,647	110	725	33,360	37,346
Canada . . . . .	7	7	2,110	1,618	—	—	16,559	21,405
United States . . . . .	77	317	1,603	2,968	194	245	20,329	18,651
Japan . . . . .	33	75	671	514	1,409	2,116	28,100	33,651
Tunisia . . . . .	756	399	871	712	1,023	309	6,912	5,803
Totals . . . . .	121	2	18,759	7,632	5,064	7,652	10,699	17,686
<i>Exporting Countries:</i>								
United States . . . . .	57	13	19,582	5,278	2,150	4,363	126,872	149,004
Totals . . . . .	116,936	65,061	206,077	105,674	2,159,697	2,194,577	2,257,000	2,414,195

a) = Wool, greasy. b) = Wool, scoured. — 1) See notes page 730.

COUNTRIES	JULY		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1-June 30)	COUNTRIES	JULY		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1-June 30)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Coffee. — (Thousand lb.).</b>						<b>Tea. — (Thousand lb.).</b>					
<b>EXPORTS.</b>						<b>EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries</i>					
Brazil . . . . .	...	...	1,773,836	2,050,906	—	Ceylon . . . . .	18,188	20,027	213,701	210,494	—
India . . . . .	26	75	16,521	20,893	—	China . . . . .	6,997	12,831	96,477	104,272	—
Java and Madura . . . . .	6,102	7,670	65,500	64,607	—	India . . . . .	29,143	28,673	108,701	316,788	—
<i>Importing Countries:</i>						Java and Madura . . . . .	9,167	9,899	120,847	107,046	—
Germany . . . . .	0	9	66	234	—	Japan . . . . .	5,024	2,209	30,986	31,720	—
Belgium . . . . .	60	15	152	284	—	<i>Importing Countries</i>					
France . . . . .	0	0	9	71	—	Belgium . . . . .	0	0	9	9	—
Gr. Britain and N. Ireland . . . . .	1,810	1,129	18,962	33,215	—	Irish Free State . . . . .	2	71	256	159	—
Netherlands . . . . .	518	902	11,524	18,468	—	France . . . . .	2	2	26	40	—
Portugal . . . . .	214	174	2,712	3,311	—	Gr. Brit and N. Irel. . . . .	5,130	6,651	68,831	78,736	—
Switzerland . . . . .	0	53	553	351	—	Netherlands . . . . .	7	9	132	146	—
Canada . . . . .	11	4	115	57	—	United States . . . . .	26	82	765	1,706	—
United States . . . . .	983	811	16,449	25,212	—	Syria and Lebanon . . . . .	0	2	9	2	—
Ceylon . . . . .	0	2	4	7	—	Algeria . . . . .	...	...	93	57	—
Syria and Lebanon . . . . .	0	0	0	2	—	Union of S. Africa . . . . .	...	...	31	18	—
Australia . . . . .	2	4	73	40	—	Australia . . . . .	51	55	802	928	—
<b>Totals . . . . .</b>	—	—	<b>1,906,476</b>	<b>2,217,658</b>	—	New Zealand . . . . .	...	...	112	106	—
<b>IMPORTS.</b>						<b>Totals . . . . .</b>	<b>73,737</b>	<b>80,511</b>	<b>641,778</b>	<b>852,227</b>	—
<i>Importing Countries:</i>						<i>Importing Countries</i>					
Germany . . . . .	28,241	43,200	327,491	307,398	—	Germany . . . . .	774	1,274	10,216	10,415	—
Austria . . . . .	977	941	12,291	11,244	—	Austria . . . . .	31	44	836	728	—
Belgium . . . . .	7,842	7,807	103,750	109,702	—	Belgium . . . . .	31	33	613	534	—
Bulgaria . . . . .	75	62	1,060	1,074	—	Denmark . . . . .	79	64	1,230	1,230	—
Denmark . . . . .	4,220	5,359	58,260	58,021	—	Spain . . . . .	20	18	272	328	—
Spain . . . . .	4,628	2,963	52,117	61,494	—	Estonia . . . . .	4	2	77	66	—
Estonia . . . . .	13	11	163	152	—	Irish Free State . . . . .	1,358	2,467	22,818	23,464	—
Irish Free State . . . . .	46	20	520	545	—	Finland . . . . .	20	9	247	251	—
Finland . . . . .	3,448	3,139	39,117	37,040	—	France . . . . .	190	79	2,189	3,968	—
France . . . . .	34,372	32,060	392,274	409,228	—	Gr. Britain and N. Ireland . . . . .	33,550	39,714	507,905	470,574	—
Gr. Britain and N. Ireland . . . . .	935	1,559	57,574	77,418	—	Greece . . . . .	22	18	448	390	—
Greece . . . . .	1,087	994	12,604	12,624	—	Hungary . . . . .	11	24	611	381	—
Hungary . . . . .	251	459	5,534	4,314	—	Italy . . . . .	13	11	342	280	—
Italy . . . . .	6,504	7,209	86,975	86,882	—	Latvia . . . . .	...	...	84	51	—
Latvia . . . . .	...	...	143	271	—	Lithuania . . . . .	9	4	77	84	—
Lithuania . . . . .	20	24	419	359	—	Norway . . . . .	24	15	337	381	—
Norway . . . . .	4,420	2,061	35,894	37,366	—	Netherlands . . . . .	2,438	3,832	30,012	25,942	—
Netherlands . . . . .	6,587	6,259	62,949	137,459	—	Poland . . . . .	282	251	3,814	3,719	—
Poland . . . . .	963	1,206	15,668	16,852	—	Portugal . . . . .	31	44	399	478	—
Portugal . . . . .	703	866	15,847	12,485	—	Sweden . . . . .	49	46	944	884	—
Sweden . . . . .	8,139	7,981	97,506	96,759	—	Switzerland . . . . .	192	93	1,609	1,576	—
Switzerland . . . . .	6,845	2,059	32,476	32,058	—	Czechoslovakia . . . . .	46	42	1,056	902	—
Czechoslovakia . . . . .	1,510	2,041	23,810	23,177	—	Yugoslavia . . . . .	22	20	439	388	—
Yugoslavia . . . . .	1,345	974	13,770	13,823	—	United States . . . . .	3,089	1,191	30,287	41,246	—
Canada . . . . .	2,414	2,191	31,800	36,110	—	Chile . . . . .	5,829	6,471	83,571	87,691	—
United States . . . . .	147,212	104,054	1,551,815	1,598,178	—	Syria and Lebanon . . . . .	642	53	5,093	2,156	—
Chile . . . . .	908	465	5,743	4,713	—	Algeria . . . . .	0	4	470	271	—
Ceylon . . . . .	300	251	3,272	3,150	—	Egypt . . . . .	...	...	2,899	3,863	—
Japan . . . . .	412	489	7,017	6,124	—	Tunisia . . . . .	...	...	15,966	15,166	—
Syria and Lebanon . . . . .	9	101	2,286	2,368	—	Union of S. Africa . . . . .	...	...	3,417	1,781	—
Algeria . . . . .	...	...	31,207	29,518	—	Australia . . . . .	4,275	3,538	13,056	11,636	—
Egypt . . . . .	...	...	15,756	17,604	—	New Zealand . . . . .	...	...	46,875	46,260	—
Tunisia . . . . .	...	...	3,382	3,344	—	<i>Exporting Countries:</i>					
Un. of S. Africa . . . . .	...	...	26,960	29,313	—	China . . . . .	60	68	602	677	—
Australia . . . . .	421	247	3,567	5,057	—	India . . . . .	445	172	3,148	4,482	—
New Zealand . . . . .	...	...	456	492	—	Java and Madura . . . . .	...	...	1,649	2,035	—
<b>Totals . . . . .</b>	<b>274,847</b>	<b>237,052</b>	<b>3,131,473</b>	<b>3,283,716</b>	—	<b>Totals . . . . .</b>	<b>53,536</b>	<b>59,601</b>	<b>802,983</b>	<b>775,685</b>	—

COUNTRIES	JULY		TEN MONTHS (Oct. 1-July 31)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	JULY		TWELVE MONTHS (Aug. 1-July 31)		TWELVE MONTHS (August 1-July 31)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Cacao. — (Thousand lb.).</b>						<b>Total Wheat and Flour *)</b>					
<b>EXPORTS.</b>						<b>a) NET EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Grenada . . . . .			1) 8,148	1) 8,620	9,612	Germany . . . . .	3) 3) 3) 2,732	—			
Dominican Republ. . . . .	11,577	3,911	59,102	1) 47,713	49,818	Bulgaria . . . . .	0 2 220	2,366			
Brazil . . . . .	...	...	1) 155,217	1) 113,746	211,530	Spain . . . . .	0 0 0	42			
Ecuador . . . . .	...	...	1) 26,905	1) 30,664	37,084	Estonia . . . . .	2 0 121	0			
Trinidad . . . . .	4,484	1,338	41,782	27,011	29,057	France . . . . .	154 3) 11,041	3) —			
Venezuela . . . . .	...	...	1) 15,664	1) 19,328	25,223	Hungary . . . . .	249 108 7,604	17,452			
Ceylon . . . . .	686	366	6,552	8,298	8,841	Latvia . . . . .	...	1) 293	1) 0		
Java and Madura . . . . .	337	194	2,304	2,443	4,195	Lithuania . . . . .	4 0 584	29			
French Cameroon . . . . .	...	...	1) 40,931	1) 37,309	41,291	Poland . . . . .	820 703 2,264	1,466			
Ivory Coast . . . . .	...	...	1) 82,718	1) 67,925	77,762	Romania . . . . .	478 0 2,533	139			
Gold Coast . . . . .	24,377	17,298	493,224	462,194	494,792	Sweden . . . . .	408 300 1,069	3) —			
Nigeria and British Cameroon . . . . .	...	...	1) 160,396	1) 141,767	159,165	Yugoslavia . . . . .	24 126 2,551	626			
Saint Thomas and Prince Is. . . . .	571	1,157	19,513	17,441	19,780	U. S. S. R. . . . .	...	2) 888	2) 19,502		
French Togoland . . . . .	...	...	1) 16,127	1) 12,313	12,932	Canada . . . . .	6,506 8,790 98,518	115,972			
<i>Importing Countries:</i>						United States . . . . .	3) 816 3) 15,124	—			
Germany . . . . .	0	0	88	205	205	Argentina . . . . .	6,790 10,181 108,701	88,033			
Belgium . . . . .	0	0	176	9	18	Chile . . . . .	3) 196 225	3) —			
France . . . . .	0	0	2	0	0	India . . . . .	57 3) 551	223			
Gr. Brit. and N. Irel. . . . .	377	1,003	12,106	9,511	13,492	Syria and Lebanon . . . . .	31 3) 207	3) —			
Netherlands . . . . .	172	1,157	3,594	6,149	7,368	Algeria . . . . .	...	1) 7,326	1) 6,546		
United States . . . . .	1,179	816	8,322	9,010	10,823	French Morocco . . . . .	170 791 4,557	4,725			
Australia . . . . .	9	7	401	291	322	Tunisia . . . . .	...	1) 2,158	3) —		
<b>Totals . . . . .</b>	<b>43,769</b>	<b>27,247</b>	<b>1,153,272</b>	<b>1,021,947</b>	<b>1,213,310</b>	Australia . . . . .	4,458 4,553 64,089	50,651			
<b>IMPORTS.</b>						<b>Totals . . . . .</b>	<b>20,151 26,566 315,500 325,628</b>				
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany . . . . .	10,587	29,527	141,268	185,826	218,563	<b>b) NET IMPORTS.</b>					
Austria . . . . .	730	697	10,776	8,448	10,282	Germany . . . . .	104 741 6,180	4) —			
Belgium . . . . .	2,022	1,076	16,219	22,020	24,954	Austria . . . . .	705 549 5,831	6,195			
Bulgaria . . . . .	73	37	712	631	798	Belgium . . . . .	1,949 1,953 23,839	25,772			
Denmark . . . . .	225	368	6,986	7,306	8,468	Denmark . . . . .	683 948 11,341	7,511			
Spain . . . . .	1,859	2,094	20,662	23,336	24,963	Irish Free State . . . . .	829 1,030 10,124	11,735			
Estonia . . . . .	55	15	584	573	644	Finland . . . . .	254 260 2,469	2,626			
Irish Free State . . . . .	44	31	2,610	3,962	4,449	France . . . . .	4) 578 4) 10,137	—			
Finland . . . . .	26	9	212	123	157	Gr. Brit. and N. Irel. . . . .	10,194 11,420 119,956	130,549			
France . . . . .	6,920	7,963	76,263	83,077	94,376	Greece . . . . .	849 196 8,728	6,301			
Gr. Brit. and N. Irel. . . . .	3,514	2,824	183,505	172,960	176,467	Italy . . . . .	1,204 340 7,474	5,355			
Greece . . . . .	269	220	2,423	2,480	2,868	Norway . . . . .	421 403 5,232	4,996			
Hungary . . . . .	525	527	7,088	5,567	6,477	Netherlands . . . . .	950 873 11,590	13,510			
Italy . . . . .	1,773	814	22,646	16,458	18,470	Portugal . . . . .	51 57 408	567			
Latvia . . . . .	...	...	1) 957	1) 1,404	1,594	Sweden . . . . .	4) 4) 4) 721	—			
Lithuania . . . . .	82	29	664	505	545	Switzerland . . . . .	5) 1,155 5) 915 5) 10,748	10,551			
Norway . . . . .	470	586	6,158	4,762	5,564	Czechoslovakia . . . . .	150 7 864	104			
Netherlands . . . . .	9,460	4,718	116,892	111,603	124,522	<b>Total Europe . . . . .</b>	<b>19,498 20,270 224,784 236,630</b>				
Poland . . . . .	1,254	1,182	14,037	12,139	14,253	United States . . . . .	218 4) 3,909	4) —			
Portugal . . . . .	57	60	937	970	1,107	Chile . . . . .	24 4) 4) 214	—			
Sweden . . . . .	1,102	377	10,712	8,545	9,749	Ceylon . . . . .	29 33 571	522			
Switzerland . . . . .	2,577	617	15,148	15,651	16,455	China . . . . .	534 18 12,522	12,551			
Czechoslovakia . . . . .	1,499	1,925	19,238	20,655	23,488	India . . . . .	4) 46 4) 4) —	—			
Yugoslavia . . . . .	225	40	1,462	1,321	1,537	Indo-China . . . . .	53 35 518	452			
Canada . . . . .	2,017	1,777	22,844	20,534	22,377	Japan . . . . .	196 115 1,336	2,414			
United States . . . . .	40,834	23,422	489,549	345,589	412,610	Java and Madura . . . . .	4) 9 4) 1,431	1,314			
Japan . . . . .	203	163	2,959	1,993	2,337	Syria and Lebanon . . . . .	...	858			
Australia . . . . .	196	282	11,696	13,283	16,239	Egypt . . . . .	...	1) 1,296	1) 121		
New Zealand . . . . .	...	...	1) 2,994	2,119	2,487	Tunisia . . . . .	...	4) 1) 379	—		
<b>Totals . . . . .</b>	<b>88,598</b>	<b>81,380</b>	<b>1,208,201</b>	<b>1,093,840</b>	<b>1,246,800</b>	Union of S. Africa . . . . .	...	2) 538	2) 42		
						New Zealand . . . . .	...	2) 295	2) 172		
						<b>Totals . . . . .</b>	<b>20,552 20,526 247,200 255,669</b>				

\*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333,333 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 30 June. — 2) Data up to 31 March. — 3) See Net Imports. — 4) See Net Exports. — 5) Wheat only.

## STOCKS OF CEREALS

### Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	September, 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
<b>WHEAT :</b>					
Canadian in Canada . . . . .	105,173	112,073	113,419	110,224	119,371
U. S. in Canada . . . . .	0	0	0	0	2,203
U. S. in the United States . . . . .	37,497	20,843	13,171	73,428	91,043
Canadian in the United States . . . . .	11,143	6,304	5,567	6,062	2,871
Of other origin in the United States . . . . .	3	469	867	0	0
<b>Total . . .</b>	<b>153,816</b>	<b>139,689</b>	<b>133,024</b>	<b>189,714</b>	<b>215,488</b>
<b>RYE</b>					
Canadian in Canada . . . . .	1,833	1,636	1,819	2,225	3,060
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	3,954	3,868	4,794	6,607	6,719
Canadian in the United States . . . . .	15	16	112	58	158
Of other origin in the United States . . . . .	1,417	1,777	1,917	7	0
<b>Total . . .</b>	<b>7,219</b>	<b>7,297</b>	<b>8,642</b>	<b>8,897</b>	<b>9,937</b>
<b>BARLEY :</b>					
Canadian in Canada . . . . .	1,708	1,632	2,439	4,589	4,280
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	4,145	2,512	2,929	6,367	8,628
Canadian in the United States . . . . .	108	220	117	124	0
Of other origin in the United States . . . . .	0	172	264	0	0
<b>Total . . .</b>	<b>5,961</b>	<b>4,536</b>	<b>5,749</b>	<b>11,080</b>	<b>12,908</b>
<b>OATS</b>					
Canadian in Canada . . . . .	1,958	2,051	1,981	3,631	4,590
U. S. in Canada . . . . .	0	0	0	58	312
U. S. in the United States . . . . .	8,193	2,408	2,828	8,430	14,782
Canadian in the United States . . . . .	0	0	0	0	0
Of other origin in the United States . . . . .	0	0	19	0	0
<b>Total . . .</b>	<b>10,151</b>	<b>4,459</b>	<b>4,828</b>	<b>12,119</b>	<b>19,684</b>
<b>MAIZE</b>					
U. S. in Canada . . . . .	100	233	749	3,253	3,963
Of other origin in Canada . . . . .	1,236	1,401	1,197	96	323
U. S. in the United States . . . . .	3,167	3,149	4,195	34,369	32,348
Of other origin in the United States . . . . .	956	873	571	0	0
<b>Total . . .</b>	<b>5,459</b>	<b>5,656</b>	<b>6,712</b>	<b>37,718</b>	<b>36,634</b>

### Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
Wheat (and flour in terms of grain) . . . . .	11,136	10,142	17,467	22,771	20,818
Rye . . . . .	202	254	1,334	216	782
Barley . . . . .	2,380	1,420	1,980	2,732	2,308
Oats . . . . .	710	358	650	1,184	666
Maize . . . . .	16,776	14,549	6,298	16,008	11,150

AUTHORITY: Broomhall's Corn Trade News

## Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	27,373	23,396	28,268	31,542	13,426
Flour for bread . . . . .	3,203	2,884	3,078	2,304	2,416
TOTAL 1) . . . . .	31,822	27,402	32,543	34,741	16,781
<b>RYE:</b>					
Grain . . . . .	26,140	21,429	23,563	19,601	14,674
Flour for bread . . . . .	1,940	1,528	1,647	1,803	1,270
TOTAL 1) . . . . .	28,993	23,676	25,985	22,253	16,541
<b>BARLEY</b> . . . . .	4,162	2,767	1,667	3,161	3,743
<b>OATS</b> . . . . .	3,115	2,235	2,743	939	946

1) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of wheat flour = 1,388.89 centals of wheat; 1,000 centals of rye flour = 1,470.59 centals of rye.

## Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	3,888	4,656	5,616	6,816	5,640
Flour as grain . . . . .	600	624	648	710	504
TOTAL . . . . .	4,488	5,280	6,264	7,526	6,144
<b>BARLEY</b> . . . . .	780	580	560	960	580
<b>OATS</b> . . . . .	272	330	336	208	464
<b>MAIZE</b> . . . . .	2,832	2,256	2,160	2,141	3,312

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News*.

## Stocks of wheat in Italy.

LOCATION	Last day of month				
	June 1935	May 1935	April 1935	March 1935	February 1935
	1,000 centals				
Wheat destined for sale by holding pools ("ammassi collettivi"):					
in collective granaries 1) . . . . .	0	9	179	983	4,112
in granaries of producers or other persons . . . . .	0	2	9	99	507
Total . . . . .	0	11	188	1,082	4,619
Wheat in general stores and in free zones 2)	1,942	2,414	3,170	3,931	5,293
Wheat in bond in the chief entrepot centres	1,451	1,709	1,422	886	888
Wheat in mills and attached elevators 3) .	1,925	3,014	5,661	6,647	7,425
GRAND TOTAL . . . . .	5,318	7,148	10,441	12,546	18,225

1) Including a small quantity of wheat belonging to holding pools which is stored in general stores. — 2) Not including quantities belonging to holding pools; see previous note. — 3) Provisional figures referring to mills which have a daily capacity of not less than 40 metric quintals.



Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
<b>WHEAT:</b>					
Antwerp. . . . .	420	449	915	1,030	1,106
Rotterdam . . . . .	179	238	354	1,184	1,556
Amsterdam . . . . .	12	0	15	30	12
<b>RYE:</b>					
Antwerp. . . . .	38	61	158	18	46
Rotterdam . . . . .	119	143	226	181	176
Amsterdam . . . . .	0	0	2	0	0
<b>BARLEY:</b>					
Antwerp. . . . .	213	250	354	91	277
Rotterdam . . . . .	30	9	7	160	22
Amsterdam . . . . .	5	13	1	27	12
<b>OATS:</b>					
Antwerp. . . . .	90	71	31	32	59
Rotterdam . . . . .	0	44	17	61	31
Amsterdam . . . . .	32	22	28	25	35
<b>MAIZE:</b>					
Antwerp . . . . .	44	36	31	332	302
Rotterdam . . . . .	66	159	121	132	165
Amsterdam . . . . .	15	26	27	39	52

1) Imported cereals. See note on p. 306 of the *Crop Report* of April 1934 — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	August 1935	July 1935	June 1935	August 1934	August 1933
	1,000 centals				
In consuming establishments . . . . .	3,136	3,838	4,294	5,257	5,691
In public storage and at compresses . . .	28,679	27,930	29,577	28,342	28,592
<b>TOTAL . . .</b>	<b>31,815</b>	<b>31,768</b>	<b>33,871</b>	<b>33,599</b>	<b>34,283</b>

Carry-over of cotton in the United-States.

Total stocks of cotton as on 31 July include, besides the monthly information on stocks in consuming establishments and in public storage and at compresses, also stocks in other positions, namely: Cotton for export on shipboard but not cleared; cotton coastwise; cotton in transit to ports, interior towns, and mills; cotton on farms and in private storage. These stocks in other positions amounted to 3,310,000 centals in 1935, against 4,684,000 centals in 1934, and 5,287,000 centals in 1933, making total stocks of 35,078,000; 38,170,000 and 39,956,000 centals in the three years mentioned.

## Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
Bombay 1) . . . . .	2,152	2,404	2,676	3,508	2,876
Alexandria 2) . . . . .	373	541	917	964	1,706

1) Stocks held by exporters, dealers and mills. — 2) From February 1934 quantities consumed in Alexandria and those returned to the interior of the country are not included; prior to that date quantities returned to the interior are included  
 AUTHORITIES: *East Indian Cotton Ass.* and *Commission de la Bourse de Mvnet-el-Bassal.*

## Cotton stocks at Alexandria on 31st August, according to varieties.

DESCRIPTION	1935	1934	1933	1932
	1,000 centals			
Sakellaris . . . . .	166	273	805	1,315
Ashmuni-Zagora . . . . .	95	535	728	1,601
Maarad . . . . .	16	38	62	91
Giza 7 . . . . .	34	29	19	33
Other varieties . . . . .	62	89	92	212
TOTAL . . . . .	373	964	1,706	3,252

AUTHORITY: *Commission de la Bourse de Mvnet-el-Bassal.*

## Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
<b>Great Britain:</b>					
American . . . . .	704	847	1,074	1,574	2,175
Argentine, Brazilian, etc. . . . .	179	221	235	837	150
Peruvian, etc. . . . .	347	309	301	505	344
East Indian, etc. . . . .	239	213	257	356	217
Egyptian, Sudanese . . . . .	868	982	1,050	1,363	963
W. Indian, W. and E. African, Australian	126	156	198	288	326
TOTAL . . . . .	2,463	2,728	3,115	4,923	4,175
<b>Bremen:</b>					
American . . . . .	539	566	604	1,622	2,075
Other . . . . .	433	304	275	229	128
TOTAL . . . . .	972	870	879	1,851	2,203
<b>Le Havre:</b>					
American . . . . .	233	321	364	571	762
French colonies . . . . .	17	14	13	38	16
Other . . . . .	88	89	71	102	39
TOTAL . . . . .	338	424	448	711	817
<b>Total Continent 1):</b>					
American . . . . .	1,147	1,293	1,437	2,685	3,550
Argentine, Brazilian, etc. . . . .	282	214	166	168	51
E. Indian, Australian, etc. . . . .	217	257	248	203	154
Egyptian . . . . .	173	203	217	114	112
W. Indian, W. African, E. African, etc. . . . .	196	129	112	160	79
TOTAL . . . . .	2,015	2,076	2,180	3,330	3,946

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Ass.* and (for Le Havre) *Bulletin de correspondance de la Bourse du Havre.*

## WEEKLY PRICES BY PRODUCTS

(All quotations are, unless otherwise stated, spot. The monthly averages are based on the weekly quotations, and the annual on the monthly.)

DESCRIPTION	13	6	30	23	AVERAGE				Commercial Season 1)	
	Sept.	Sept.	August	August	August	Sept.	Sept.			
	1935	1935	1935	1935	1935	1934	1933	1934-35	1933-34	
Wheat.										
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal)			11) 15.40	11) 15.45		16.42	8.15		9.70	
Braila: Good quality (lei p. quintal)	n. 390	390	390	390	396	* 475	377	* 420	* 375	
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	91	85 3/4	83 3/4	86 7/8	85	82 1/4	66 3/4	81 7/8	67 3/4	
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	113 3/4	109	103	104 1/4	103 1/4	n. 111 7/8	86	104 1/4	89 1/4	
Minneapolis: No. 1 Northern (cents p. 60 lb.) 2)	134	131 7/8	127 1/4	128 7/8	11) 127 3/4	116 3/4	87 3/4	110 7/8	89 3/4	
New York: No. 2 Hard Winter (cents p. 60 lb.)	122	118 1/4	114 1/4	116 3/4	114 3/4	116 3/4	97 3/4	113 1/4	98 3/4	
Buenos Aires (a): Barilletta, 80 kg. p. hectol. (paper pesos p. quintal)	8.35	7.90	7.45	7.45	7.32	7.35	5.99	6.86	5.85	
Karachi: Karachi white, 2% barley, 1 1/2 % impurities (rupees p. 656 lb.)	22-4-0	22-6-0	22-6-0	21-14-0	22-5-10	20-14-3	23-9-7	22-5-9	22-2-4	
Berlin: Home grown (free at Branden- burg stations; Rm. p. quintal) 3)	11) 19.60	11) 19.60	11) 19.40	11) 19.40	19.96	19.60	17.82	20.29	18.65	
Hamburg (c. i. f.; Rm. p. quintal):										
No. 2 Manitoba 4)	9.87	9.30	9.35	9.45	9.25	9.03	8.07	8.95	7.94	
Barusso 5)	7.81	7.32	7.16	7.13	6.99	7.02	7.20	6.50	6.22	
Antwerp (francs p. quintal):										
Home-grown	85.00	82.00	82.00	80.00	79.60	11) 67.60	63.40	69.10	63.00	
No. 1 Manitoba (Atlantic) (in bond)	109.00	108.00	111.00	110.00	107.80	78.10	75.00	86.10	67.65	
Barusso (in bond)	88.00	87.00	88.00	87.00	85.50	56.55	60.90	60.90	53.00	
Paris: Home-grown (delivery regional depots; 76 kg. p. hl.; frs. p. quintal) 6)	11) 86.00	11) 86.00	11) 83.00	11) 74.00	11) 71.60	111.00	120.00	91.50	125.65	
London: Home grown (sh. p. 504 lb.) 7).	22/9	21/6	20/-	19/6	19/10 3/4	21/9	20/9 1/2	22/4 1/2	20/10	
Liverpool and London (c. i. f., parcels, ship- ping current month; sh. p. 480 lb.)										
French (on sample)	n. q.	n. q.	19/9	19/6	19/1 3/4	22/-	n. q.	* 19/8 1/4	n. q.	
South Russian (on sample)	11) 29/4 1/2	11) 26/9	11) 25/9	11) 25/6	11) 25/7 1/4	n. q.	22/4	n. q.	* 19/5 1/2	
No. 1 Northern Manitoba (Atlantic)	34/-	32/3	31/1 1/2	32/2 1/2	31/7 1/4	31/7 1/4	26/6 1/4	31/7 1/4	26/9	
No. 1 Northern Manitoba (Pacific)	34/-	32/1 1/2	31/-	31/6	30/11 1/4	32/3 1/4	26/9	31/2 1/4	26/7	
No. 3 Northern Manitoba (Pacific)	31/1 1/2	29/-	28/-	28/9	28/2 1/2	30/11 1/4	25/0 1/2	28/5 1/4	24/5 1/4	
White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 20/5	
Rosafé (afloat) 8)	27/9	11) 27/-	11) 25/9	11) 25/7 1/2	11) 25/3	23/10 1/4	21/5	22/3 1/4	19/5 1/2	
Australian	29/9	27/6	27/3	27/-	26/9 1/4	28/8 1/4	24/8 1/4	26/0 1/2	23/4	
Milan (b): Home-grown, soft, • Buono mer- cantile • 76-78 kg. p. hl. (lire p. q.)	11) 110.50	11) 109.00	11) 109.00	11) 107.00	11) 103.40	85.70	82.60	95.80	83.85	
Genoa: Sicilian Durum (c. i. f., lire p. quint.)	n. q.	n. q.	n. q.	n. q.	n. q.	107.00	105.40	* 113.05	107.85	
Genoa (c. i. f.; U. S. \$ p. quintal):										
No. 2 Manitoba (Pacific)	n. q.	n. q.	n. q.	n. q.	n. q.	3.56	2.74	* 3.38	* 2.87	
No. 2 Canadian Durum 9)	n. q.	n. q.	n. q.	n. q.	n. q.	4.24	2.80	* 4.09	* 3.11	
Bahia Blanca, 79 kg. p. hl 10)	n. q.	n. q.	n. q.	n. q.	n. q.	119/3	n. q.	* 111/-	* 93/6	
Rye.										
Berlin: Home-grown (free at Branden- burg stations; Rm. p. quintal) 3)	11) 15.90	11) 15.90	11) 15.70	11) 15.70	11) 15.70	15.60	14.32	16.29	15.34	
Hamburg (c. i. f.; Rm. p. quintal): Plata, 72-73 kg p. hl.	4.70	4.37	4.29	4.41	4.38	7.00	5.35	5.76	4.76	
Budapest: Pest rye (pengő p. quintal)	...	...	11) 13.90	11) 14.05	...	12.37	4.73	...	5.24	
Warsaw: Good quality (zloty p. quint.)	12.87	12.37	12.37	11.12	10.77	17.25	14.20	14.82	14.32	
Winnipeg: No. 2 (cents p. 56 lb.)	39 3/4	36 3/4	35 7/8	36	36 3/4	65 3/4	51 7/8	52 3/4	47 1/4	
Minneapolis: No. 2 (cents p. 56 lb.)	44 3/4	44 3/4	44	47 3/4	45 3/4	85 1/2	70 1/4	67 3/4	63	
Groningen (c): Home-grown (fl. p. quint.)	6.60	6.27	6.30	6.20	* 6.37	7.41	3.29	7.35	6.65	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices. — c) Prices of preceding Tuesday.

1) August-July. — 2) From 9' Aug. 1935, No. 1 Dark Northern Spring. — 3) 1 Oct. 1933-15 Aug. 1934, for wheat, and 1 Oct. 1933-15 July 1934, for rye: minimum prices; subsequently, fixed producers prices for the price region of Berlin city. See *Government measures*, No. 2, p. 57. — 4) From Nov. 1934, No. 1 Manitoba. — 5) Year 1933, 79 kg. p. hl.; subsequently, 80 kg. — 6) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations. For the regulations on milling see *Government measures*, No. 2, pp. 69-73. — 7) From Aug. 1933, prices on the farm. — 8) Aug.-Oct. 1933, 63 1/2 lb. p. bushel; Nov.-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 1/2 lb. — 9) From Dec. 1934, No. 1 Can. Dur. — 10) From Feb. 1934, prices in sh. p. 2000 kg. — 11) New crop. — 12) No. 1 Dark North Spring. — 13) Shipping October. Parcels from Port Churchill, shipping Sept.-Oct.: 33/7 1/2. — 14) Shipping September. — 15) Shipping Aug.-September.

DESCRIPTION	13	6	30	23	AVERAGE					Commercial	
	Sept.	Sept.	August	August	August	Sept.	Sept.	Sept.	Season 1)		
	1935	1935	1935	1935	1935	1934	1933		1934-35	1933-34	
<b>Barley.</b>											
Warsaw: Malting, good quality (zloty p. quintal) . . . . .	<sup>7)</sup> 16.50	<sup>a)</sup> 13.75	<sup>a)</sup> 13.50	<sup>a)</sup> 13.50	<sup>a)</sup> 13.40	21.25	<sup>a)</sup> 15.75		19.60	<sup>a)</sup> 15.87	
Braila: Average quality (lei p. quintal). . . . .	230	220	220	220	208	279	130	<sup>a)</sup> 246	<sup>a)</sup> 154		
Prague: Malting, av. qual. (crs. p. quintal) 2) . . . . .	<sup>7)</sup> 126.50	<sup>7)</sup> 126.50	<sup>7)</sup> 125.00	<sup>7)</sup> 125.00	<sup>7)</sup> 125.00	126.50	88.90		131.70	<sup>a)</sup> 94.20	
Winnipeg: No. 4 Western (cents p. 48 lb.) . . . . .	34 <sup>1</sup> / <sub>2</sub>	31 <sup>1</sup> / <sub>2</sub>	29 <sup>1</sup> / <sub>2</sub>	30 <sup>1</sup> / <sub>2</sub>	30 <sup>1</sup> / <sub>2</sub>	55 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 33 <sup>1</sup> / <sub>2</sub>		45 <sup>1</sup> / <sub>2</sub>	36 <sup>1</sup> / <sub>2</sub>	
Chicago: Feeding (on sample, cents p. 48 lb.) . . . . .	46	44	40	45	40 <sup>1</sup> / <sub>2</sub>	82	48		72 <sup>1</sup> / <sub>2</sub>	54	
Minneapolis: No. 2 Feeding (c. p. 48 lb.) . . . . .	39	41	41	40	38 <sup>1</sup> / <sub>2</sub>	80 <sup>1</sup> / <sub>2</sub>	49 <sup>1</sup> / <sub>2</sub>		67 <sup>1</sup> / <sub>2</sub>	45 <sup>1</sup> / <sub>2</sub>	
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3) 4). . . . .	<sup>7)</sup> 16.20	<sup>7)</sup> 16.20	<sup>7)</sup> 16.00	<sup>7)</sup> 16.00	<sup>7)</sup> 16.00	15.50	15.27		16.16	<sup>a)</sup> 16.17	
Antwerp: Danubian (in bond; francs p. q.) . . . . .	70.00	71.00	71.00	71.00	71.80	73.50	42.10		69.45	49.35	
London: English malting, best quality (sh. p. 448 lb.) 5) . . . . .	<sup>7)</sup> 43/-	<sup>7)</sup> 43/-	<sup>7)</sup> 43/-	<sup>7)</sup> 40/-	<sup>7)</sup> 41/6	45/-	45/-		38/-	<sup>a)</sup> 39 5/16	
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.): . . . . .											
Danubian, 3 % impurities . . . . .	n. q.	n. q.	n. q.	n. q.	<sup>a)</sup> 14/-	23/1 <sup>1</sup> / <sub>2</sub>	13/0 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 19/2 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 13/9 <sup>1</sup> / <sub>2</sub>		
Russian (Azoff, Black Sea) . . . . .	15/4 <sup>1</sup> / <sub>2</sub>	14/6	<sup>a)</sup> 14/-	<sup>a)</sup> 14/-	13/9 <sup>1</sup> / <sub>2</sub>	n. q.	13/1	n. q.	<sup>a)</sup> 13/7 <sup>1</sup> / <sub>2</sub>		
No. 3 Canadian Western . . . . .	16/10 <sup>1</sup> / <sub>2</sub>	16/-	15/6	15/8 <sup>1</sup> / <sub>2</sub>	15/10 <sup>1</sup> / <sub>2</sub>	25/1	<sup>a)</sup> 17 <sup>1</sup> / <sub>2</sub>	21/10 <sup>1</sup> / <sub>2</sub>	17/9 <sup>1</sup> / <sub>2</sub>		
Californian malting (sh. p. 448 lb.) . . . . .	21/-	20/6	20/6	21/-	21/3 <sup>1</sup> / <sub>2</sub>	34/7 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 26/2	<sup>a)</sup> 31/6	22/7 <sup>1</sup> / <sub>2</sub>		
Plate (64-65 kg. p. hl) . . . . .	15/9	14/6	<sup>a)</sup> 14/-	14/-	14/2 <sup>1</sup> / <sub>2</sub>	22/1	15/1 <sup>1</sup> / <sub>2</sub>	18/4	14/2 <sup>1</sup> / <sub>2</sub>		
Persian . . . . .	15/3	14/6	<sup>a)</sup> 14/6	n. q.	<sup>a)</sup> 13/11	22/8 <sup>1</sup> / <sub>2</sub>	n. q.	18/6	<sup>a)</sup> 14/0 <sup>1</sup> / <sub>2</sub>		
Groningen a): Home grown, winter (fl.p.q.) . . . . .	<sup>7)</sup> 4.50	<sup>7)</sup> 3.97	<sup>7)</sup> 3.97	<sup>7)</sup> 3.97	<sup>7)</sup> 4.01	5.35	5.59	5.30	4.44		
<b>Oats.</b>											
Braila: Good quality (lei p. quintal) . . . . .	<sup>7)</sup> 265	<sup>7)</sup> 265	<sup>7)</sup> 275	<sup>7)</sup> 265	<sup>7)</sup> 270	n. q.	149	n. q.	<sup>a)</sup> 148		
Winnipeg: No. 2 White (cents per 34 lb.) . . . . .	37	35 <sup>1</sup> / <sub>2</sub>	35 <sup>1</sup> / <sub>2</sub>	36 <sup>1</sup> / <sub>2</sub>	36 <sup>1</sup> / <sub>2</sub>	45 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 33 <sup>1</sup> / <sub>2</sub>	42 <sup>1</sup> / <sub>2</sub>	33 <sup>1</sup> / <sub>2</sub>		
Chicago: No. 2 White (cents per 32 lb.) . . . . .	33	30 <sup>1</sup> / <sub>2</sub>	29 <sup>1</sup> / <sub>2</sub>	32	32 <sup>1</sup> / <sub>2</sub>	57 <sup>1</sup> / <sub>2</sub>	36 <sup>1</sup> / <sub>2</sub>	50 <sup>1</sup> / <sub>2</sub>	37 <sup>1</sup> / <sub>2</sub>		
Buenos Aires b): Current quality (paper pesos p. quintal) . . . . .	7.10	6.70	6.10	5.65	5.79	5.72	3.82	5.39	3.65		
Berlin: Home grown (free at Brandenburg stations; Rm. p. quint.) 3) . . . . .	<sup>7)</sup> 15.80	<sup>7)</sup> 15.80	16.90	16.90	16.90	15.70	13.62	16.39	14.92		
Paris: Home grown, black and other (delivery regional depots; frs. p. quintal). . . . .	47.85	48.25	44.75	41.85	40.80	59.25	51.35	48.50	48.00		
London: Home grown white (sh. p. 336 lb.) 5) . . . . .	<sup>7)</sup> 19/-	<sup>7)</sup> 18/6	<sup>7)</sup> 18/-	<sup>7)</sup> 18/-	<sup>7)</sup> 18/-	<sup>7)</sup> 19/-	16/4 <sup>1</sup> / <sub>2</sub>	20/10	18/1 <sup>1</sup> / <sub>2</sub>		
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.): . . . . .											
Canadian, No 2 Western (Pacific) 6) . . . . .	<sup>a)</sup> 18/6	<sup>a)</sup> 18/-	<sup>a)</sup> 18/-	<sup>a)</sup> 18/3	19/3	22/7 <sup>1</sup> / <sub>2</sub>	n. q.	20/10 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 17/4		
Plate (f. a. q.) . . . . .	16/3	15/-	14/6	13/6	<sup>a)</sup> 13/10	13/9	11/7 <sup>1</sup> / <sub>2</sub>	13/0 <sup>1</sup> / <sub>2</sub>	10/2		
Milan (c) (lire p. quintal): . . . . .											
Home grown . . . . .	99.00	98.00	97.00	96.50	<sup>a)</sup> 88.35	57.50	49.60	61.25	50.70		
Foreign . . . . .	n. q.	n. q.	n. q.	n. q.	75.00	57.60	49.60	60.45	50.05		
<b>Maize.</b>											
Braila: Average quality (lei p. quintal) . . . . .	<sup>7)</sup> 230	<sup>7)</sup> 220	310	290	286	245	171	<sup>a)</sup> 223	<sup>a)</sup> 173		
Chicago: No. 3 Yellow (cents p. 56 lb.) . . . . .	83	78 <sup>1</sup> / <sub>2</sub>	76	81	<sup>a)</sup> 82 <sup>1</sup> / <sub>2</sub>	79 <sup>1</sup> / <sub>2</sub>	47	78 <sup>1</sup> / <sub>2</sub>	46 <sup>1</sup> / <sub>2</sub>		
Buenos Aires (b): Yellow Plata (paper pesos p. quintal) . . . . .	4.40	4.40	4.40	4.40	4.40	6.92	3.79	5.72	4.26		
Antwerp (in bond; francs p. quintal): . . . . .											
Yellow Plata . . . . .	53.00	52.50	54.00	52.50	53.70	56.35	43.50	53.70	48.35		
Cinquantino (Argentine "Cuarentino") . . . . .	55.50	55.00	55.50	54.50	55.50	59.50	50.20	58.25	58.00		
Liverpool and London (c.i.f., parcels, shipping current month; sh. p. 480 lb.): . . . . .											
Danubian . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	23/5 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 16/7	<sup>a)</sup> 20/-	16/9 <sup>1</sup> / <sub>2</sub>		
Yellow Plate . . . . .	15/9	15/-	14/9	15/1 <sup>1</sup> / <sub>2</sub>	14/11	22/6 <sup>1</sup> / <sub>2</sub>	15/8	19/8 <sup>1</sup> / <sub>2</sub>	16/7		
No. 2 White flat African . . . . .	<sup>a)</sup> 16/3	<sup>a)</sup> 15/7 <sup>1</sup> / <sub>2</sub>	<sup>a)</sup> 15/9	<sup>a)</sup> 16/9	16/-	24/4 <sup>1</sup> / <sub>2</sub>	n. q.	21/4 <sup>1</sup> / <sub>2</sub>	n. q.		
Milan (c): « Alto Milanese » (lire p. quint.) . . . . .	80.50	79.50	79.50	78.50	81.50	46.75	48.60	58.50	58.80		

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Prices of preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. — 3) From 16 July 1934 for fodder barley and from 1 August 1934 for oats, fixed producers' prices for the price region of Berlin city. See *Government measures*, No 2, p. 57. — 4) Sept. 1933-June 1934, spring barley, average quality. — 5) From Aug. 1933, prices on the farm. — 6) June-Dec. 1934 and from May 1935, Atlantic. — 7) New crop. — 8) Fodder barley. — 9) Shipping September. — 10) Shipping Sept.-Oct. — 11) New crop, shipping Oct. — 12) Revised figures: 16 Aug. 85 <sup>1</sup>/<sub>2</sub>; 2 Aug. 84 <sup>1</sup>/<sub>2</sub>. — 13) Shipping Oct.-November.

DESCRIPTION	13 Sept. 1935	6 Sept. 1935	30 August 1935	23 August 1935	AVERAGE					Commercial Season 1)	
					August 1935	Sept. 1934	Sept. 1933	1934	1933		
Rice (milled).											
Valencia (a): No. 3 Belloch (pesetas p. quintal) . . . . .	54.50	58.50	58.50	58.50	58.50	46.75	41.75	46.95	43.10		
Milan (b) (lire p. quintal):											
Vialone, oiled . . . . .	153.50	153.50	153.50	151.00	150.30	153.50	194.60	177.10	198.20		
Maratelli, oiled . . . . .	137.50	137.00	134.00	131.50	131.10	122.00	132.00	138.05	139.90		
Originario, white . . . . .	133.50	134.50	132.50	131.00	129.10	102.90	93.50	102.80	95.50		
Rangoon: No. 2 Burma (rupees p. 7500 lb.)	260	255	245	242 1/2	248	245	181 1/2	201 1/2	194 1/2		
Saigon (Indo-chinese piastres p. quintal):											
No. 1 Round white, 25 % broken . . . . .	...	...	4.07	4.04	4.14	4.00	4.02	3.25	4.08		
No. 2 Japan, 40 % broken . . . . .	...	...	3.79	3.74	3.82	3.83	3.85	3.09	3.90		
Marseilles (a): No. 1 Saigon (c. i. f.; frs. p. quintal) . . . . .	60.00	65.00	...	58.00	...	54.25	52.75	45.95	53.10		
London (a) (c. i. f.; shillings p. cwt.):											
No. 3 Spanish Belloch, oiled . . . . .	n. q.	13/-	13/-	13/-	13/-	n. 10/1 1/2	* 12/6	* 10/9	12/5 1/2		
No. 6 Italian good, oiled . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	* 11/9 1/2	* 10/4 1/2	11/10 1/2	11/2 1/2		
American Blue Rose, extra fancy . . . . .	13/9	* 13/10 1/2	15/9	n. q.	n. q.	* 17/9	* 20/9	17/3 1/2	16/9 1/2		
No. 2 Rangoon or Bassem (Burma) . . . . .	7/7 1/2	7/9	7/6	7/3	7/5 1/2	8/0 1/2	6/4 1/2	6/7 1/2	6/6 1/2		
No. 1 Saigon . . . . .	7/6	7/4 1/2	7/4 1/2	6/10 1/2	7/3 1/2	7/7	7/1 1/2	6/3 1/2	6/9 1/2		
Siam Super, white . . . . .	9/6 1/2	9/6	9/3	9/3	9/3 1/2	8/8 1/2	8/3 1/2	7/5	8/1 1/2		
Tokyo: Chumai (brown Japanese, average quality, yen p. koku) . . . . .	31.80	31.60	30.70	30.50	30.34	28.60	20.70	26.09	21.62		
Linseed.											
Buenos Aires (a): Current quality (paper pesos p. quintal) . . . . .	12.25	12.30	11.95	12.20	12.05	13.39	11.32	12.74	10.56		
Antwerp: Plate (in bond, frs. p. quint.)	139.00	137.00	140.00	136.00	137.10	109.90	121.10	107.60	111.70		
London (c. i. f.; £ p. long ton):											
Plate (delivery Hull) . . . . .	n. 9-7-6	n. 9-7-6	9-3-9	9-7-6	9-7-9	10-10-0	10-11-9	10-0-8	9-11-11		
Bombay bold . . . . .	11-17-6	11-13-9	11-10-0	11-12-6	11-15-0	11-19-1	11-16-0	11-17-0	11-5-4		
Duluth: No. 1 Northern (quotations of terminal market; cents p. 56 lb.) . . . . .	157 1/2	157 1/2	* 151 1/2	* 155 1/2	* 156 1/2	188 1/2	184 1/2	186 1/2	156 1/2		
Cotton seed.											
Alexandria (piastres p. ardeb):										1934-35	1933-34
Upper Egypt . . . . .	65.0	64.9	64.6	n. q.	* 62.5	* 47.9	* 48.2	62.0	41.8		
Sakellaridis . . . . .	60.5	n. q.	n. q.	n. q.	* 58.5	* 43.8	n. q.	57.7	37.5		
London Sakellaridis (c. i. f., delivery Hull; £ p. long ton) . . . . .	n. 6-8-9	n. 6-6-3	n. 6-7-6	n. 6-5-0	n. 6-1-9	4-17-2	4-17-0	5-18-7	4-5-11		
Cotton.											
New Orleans: Middling (cents p. lb.) . . . . .	10.65	10.60	10.65	10.95	11.33	13.00	9.29	12.47	10.90		
New York: Middling (cents p. lb.) . . . . .	10.75	10.75	10.75	11.10	11.43	12.99	9.55	12.46	11.07		
Bombay: M. g. Broach f. g. (terminal market quotations, rup. p. 784 lb.)	198	197	192	197	214 1/2	217 1/2	199 1/2	230 1/2	197		
Alexandria (talaris p. kantar):											
Sakellaridis, f. g. f. . . . .	14.25	14.25	14.05	14.15	14.46	14.79	12.86	15.20	14.44		
Ashmuni-Zagora, f. g. f. . . . .	12.05	11.90	12.05	12.35	13.00	12.85	11.05	13.34	11.63		
Bremen: Middling (U. S. cents p. lb.) . . . . .	12.95	12.83	12.98	13.45	13.56	14.85	10.80	14.38	12.56		
M. g. Broach, f. g. (pence p. lb.) . . . . .	n. 5.85	n. 5.85	n. 5.85	n. 5.85	n. 5.97	n. 5.42	n. 4.72	n. 6.04	n. 4.81		
Le Havre: Middling (Gulf; frs. p. 50 kg.)	223.50	218.50	224.50	225.00	234.30	255.25	213.20	250.75	229.85		
Liverpool (pence per lb.):											
Middling, fair . . . . .	n. 7.17	n. 7.11	n. 7.11	n. 7.23	n. 7.35	n. 8.11	n. 6.68	n. 7.95	n. 7.11		
Middling . . . . .	6.17	6.11	6.21	6.33	6.45	7.06	5.49	6.94	6.02		
São Paulo, g. f. . . . .	6.32	6.26	6.31	6.48	6.59	7.05	5.85	6.99	6.13		
C. P. Oomra, superfine . . . . .	5.16	5.11	5.12	5.24	5.48	5.37	4.79	5.73	4.92		
M. g. Broach, f. g. . . . .	5.09	5.04	5.04	5.16	5.36	5.27	n. 4.46	5.61	4.62		
Egyptian Sakellaridis, f. g. f. . . . .	8.11	8.13	7.95	7.99	8.06	8.42	7.35	8.52	8.07		
Upper Egyptian, f. g. f. . . . .	7.13	7.09	7.09	7.18	7.26	7.28	6.49	7.55	6.64		

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) 16 August: 4.12; 9 August: 4.22; 2 August: 4.27. — 3) 16 August: 3.74, 9 August: 3.92; 2 August: 3.91. — 4) New crop. — 5) New crop, shipping October. — 6) September futures. — 7) New crop shipping September. — 8) April-May futures.

DESCRIPTION	13	6	30	23	AVERAGE				Commercial Season		
	Sept.	Sept.	August	August	August	Sept.	Sept.	1933	1934	1935	
	1935	1935	1935	1935	1935	1934	1933				
<b>Bacon.</b>											
London, Provision Exchange (a) (shill. p. cwt.):											
English, No 1, lean sizable . . . . .	83/-	83/-	82/-	84/-	87/10	96/1	...	91/2	...	...	
Danish, No 1, sizable . . . . .	83/-	83/-	83/-	83/-	87/10	94/4	86/5	87/11	74/5	...	
Irish, No 1, sizable . . . . .	82/-	80/6	80/-	81/-	86/6	94/1	89/5	90/5	83/4	...	
Lithuanian, No 1, sizable . . . . .	78/-	78/-	78/-	78/-	80/10	86/6	79/5	82/-	65/5	...	
Dutch, No 1, sizable . . . . .	80/-	80/-	79/-	79/-	84/2	86/9	82/2	84/-	67/6	...	
Polish, No 1, sizable . . . . .	76/-	76/-	76/-	76/-	78/10	86/3	77/5	80/11	63/10	...	
Swedish, No 1, sizable . . . . .	79/-	79/-	79/-	79/-	84/2	88/4	83/5	84/4	70/-	...	
Canadian, No 1, sizable . . . . .	76/-	76/-	76/-	76/-	78/10	86/9	78/5	80/3	64/6	...	
<b>Butter.</b>											
Copenhagen (b): Danish (cra. p. quint.) . .	230.00	210.00	195.00	185.00	187.00	180.00	201.00	160.75	171.00	...	
Leeuwarden, Commission for butter quotations (b): Dutch (cents p.kg.) . . . .	63	53	47	44	46 1/4	43	65	44 3/4	60	...	
Zutphen, auction: Dutch (price for home consumption; cents p. kg.) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	146	164	147 1/2	159 1/2	...	
Germany (c) (fixed prices; Km. p. 50 Kg.) 1):											
Butter with quality mark . . . . .	130.00	130.00	130.00	130.00	130.00	131.00	128.07	129.04	112.72	...	
Creamery butter . . . . .	123.00	123.00	123.00	123.00	123.00	122.00	122.25	120.87	106.25	...	
London (d): English creamery, finest quality (shillings p. cwt.) . . . . .	132/-	126/-	121/4	121/4	121/4	114/4	142/4	109/6	140/10	...	
London, Provision Exchange (a) (shill. p. cwt.):											
Danish creamery, unsalted . . . . .	128/-	119/-	114/-	109/-	110/1	106/3	117/-	98/8	103/9	...	
Estonian, unsalted . . . . .	101/-	n. q.	91/-	89/-	90/9	60/3	90/-	* 67/11	* 84/4	...	
Latvian, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	60/6	90/3	* 69/3	* 82/9	...	
Dutch creamery, unsalted . . . . .	100/6	94/-	86/6	85/-	87/3	69/10	112/-	80/4	103/4	...	
Argentine, finest, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 68/3	* 77/10	...	
Siberian, salted . . . . .	100/6	95/6	87/6	86/6	87/8	61/8	84/3	* 66/-	* 73/5	...	
Australian, finest, salted . . . . .	111/6	103/6	96/-	93/-	93/8	71/1	102/6	70/2	80/-	...	
New Zealand, finest, salted . . . . .	111/6	103/6	97/6	94/6	94/8	72/3	102/-	72/7	81/1	...	
<b>Cheese.</b>											
Milan (lire p. quintal):											
Parmigiano-Reggiano, 1st quality, production 1932 2) . . . . .	*) 735.00	*) 720.00	755.00	755.00	743.00	731.00	1,050.00	724.30	989.00	...	
Parmigiano - Reggiano, 1st quality, production 1933 2) . . . . .	*) 680.00	*) 660.00	690.00	690.00	672.00	551.25	865.00	614.60	806.00	...	
Green Gorgonzola, mature, choice . .	570.00	560.00	555.00	535.00	515.00	403.75	423.00	412.60	473.70	...	
Rome: Roman Pecorino, choice (lire p. q)	875.00	875.00	875.00	875.00	875.00 *)	593.50	915.00	658.65	1,029.00	...	
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheesemark) factory cheese, small (florins p. 50 kg.) . .	20.50	18.00	17.50	17.00	16.50	20.50	20.60	20.98	22.40	...	
Gouda: Gouda 45+ (whole milk cheese, with the country's cheesemark) home made (florins p. 50 kg.) . . . . .	22.50	22.00	22.00	21.50	20.00	23.25	26.00	22.52	26.59	...	
Kempton (c) (Rpt. p. 1/2 kg.):											
Soft cheese, green, 20 % butterfat . .	26	26	26	26	26	26	23 1/2	23 1/2	20 1/2	...	
Emmenthal from the Allgäu, whole milk cheese, 1st quality . . . . .	77	77	77	77	77	71	71	71 1/2	72 1/2	...	
London, Provision Exchange (a) (shill. p. cwt.):											
English Cheddar, finest farmers . . .	63/6	63/6	60/6	60/6	59/7	82/-	76/-	* 83/5	86/3	...	
English Cheshire, officially graded 3) .	81/8	72/4	70/-	65/4	61/7	70/-	108/6	83/4	94/4	...	
Italian Gorgonzola (d) . . . . .	109/8	108/6	107/4	103/10	103/3	79/-	84/10	82/9	85/3	...	
Dutch Edam, 40 + (d) . . . . .	52/6	50/-	49/-	44/6	44/10	54/-	61/6	54/5	59/8	...	
Canadian, finest white . . . . .	*) 53/6	*) 53/6	62/-	64/-	63/7 *)	50/10	54/4	54/-	59/8	...	
New Zealand, finest white . . . . .	54/-	51/6	49/9	49/6	48/2	47/10	52/6	46/5	46/10	...	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal — a) Average prices of Thursday and Friday morning. — b) Thursday prices. — c) Wednesday prices. — d) Average prices for the week.

1) See note on page 306 of the *Crop Report* of April 1934. — 2) Prices of 1932-cheese are compared for the preceding years with those of cheese made in 1931 and in 1930 respectively; prices of 1933-cheese with those of cheese made in 1932 and 1931. The yearly averages refer to periods from Sept. to August. — 3) From May 1934 onwards, National Mark, selected. — 4) 1933-cheese. — 5) 1934-cheese. — 6) New make.

DESCRIPTION	13	6	30	23	AVERAGE				
	Sept.	Sept.	August	August	August	Sept.	Sept.	Commercial	
	1935	1935	1935	1935	1935	1934	1933	Season 1)	
								1934	1933
Eggs.									
Antwerp, auction: Belgian, average qual. (frs. p. 100)	57.00	54.00	53.00	51.00	54.00	52.00	55.80	42.80	48.40
Denmark (a): Danish for export (crs. per quintal)	126.00	110.00	110.00	120.00	117.50	126.00	124.00	103.60	105.85
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100) 2):									
Fixed price for export into Germany.	...	...	...	...	...	4.00	3.86	3.96	3.48
Price for other destinations	...	...	...	...	...	3.29	3.86	3.34	3.48
Warsaw (b): Polish, average weight 50 gr. each, different colours (zloty p. 1440, including box)	93.33	90.00	90.00	99.17	92.83	88.75	110.00	106.50	123.60
Berlin (c): German, big, new laid (Rm. p. 100):									
marked «G I B», 65 gr. each	11.50	11.50	11.50	11.50	11.50	10.12	10.61	10.37	10.41
marked «G I B», 55/60 gr. each.	10.00	10.00	10.00	10.00	10.00	8.75	9.72	9.03	9.05
London, Egg Exchange (d) (sh. p. great hundred):									
English, National mark, specials	19/6	18/-	17/6	17/6	17/6	16/7½	18/7	15/5	15/10½
Belgian, 15 ½ lb. p. 120	10/7½	10/4½	10/7½	11/4½	10/11½	n. 10/4½	* 11/10½	* 11/0½	* 11/1
Danish, 18 lb. p. 120	12/10½	12/6	12/3	13/3	12/11½	12/6½	12/9	* 12/5½	12/9½
Northern Irish, 18 lb p. 120	18/3	16/9	16/-	16/4½	16/2½	14/6½	16/0½	* 12/9½	15/1
Dutch, all brown, 18 lb. p. 120	14/9	13/9	13/1½	14/7½	14/-	13/2½	14/5	13/5	* 14/10½
Polish, 51/54 grams each 3)	7½/½	7¼/½	7/7½	8/-	7/10½	7/1	* 8/0½	* 6/10½	* 7/4½
Chinese, violet	9½/½	8/10½	9/-	9½/½	9½/½	8/9½	9/7	* 8/3½	* 9/10
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	* 11/3½	12/-	* 11/5½	* 12/4½
Maritime freights									
(RATES FOR ENTIRE CARGOES).									
Shipments of Wheat and Maize.									
								1934-25	1933-34
Danube to Antwerp/Hamburg. (shill. per Black Sea to Antwerp/Hamb. } long ton)	n. q.	n. q.	n. q.	n. q.	n. q.	14/3	13/7½	* 13/11	* 14/1
	9/9	9/9	9/9	9/9	9/9	9/9	10/1½	* 9/11	10/3
St. John to Liverpool 4)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 1/6	* 1/11
Port Churchill to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	2/9	* 2/9½	* 2/9	* 2/9
	1/6	1/6	n. 1/6	n. 1/6	n. 1/6	1/8½	1/3½	* 1/6½	* 1/4½
Montreal to United Kingdom. (shill. per Gulf to United Kingdom 4)	2/6	2/6	2/6	2/6	2/6	2/6	n. q.	2/6	* 2/6½
New York to Liverpool 4)	1/6	1/6	1/6	1/6	1/6	1/6	1/4½	1/6	1/6
Northern Range to U.K./Cont.	1/6	1/6	1/6	1/6	1/6	n. q.	n. q.	n. q.	* 1/9
North Pacific to United Kingdom (sh. per long ton)	17 -	17 -	16 -	16 -	* 16 -	20/2½	n. 18/6	* 18/1½	* 20/1
Vancouver to Yokohama 4) (U.S.A. \$ p. short ton) 5)	...	...	...	...	...	2.75	2.15	...	2.41
La Plata Down River 6)									
/Bahia Blanca to U.K./Continent	a) 15/9	a) 15/9	a) 15/9	a) 15/9	a) 15/9	15/5	* 11/11	14/11	14/1
La Plata Up River 7) /Necochea to U.K./Continent.	a) 17/-	a) 17/-	a) 17/-	a) 17/-	a) 17/-	16/10	13/8½	16/2	15/9
Western Australia to U. K./Continent	a) 24/6	a) 24/6	a) 24/6	a) 24/6	a) 24/6	25/11	n. q.	24/6	23/10½
Shipments of Rice.									
								1934	1933
Saigon to Europe	22/6	22/6	20/-	20/-	19/9	n. 25/7½	21/10½	24/2½	23/5½
Burma to U. K./Continent	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/3	* 23/1½

\* Indicates that the product, or the maritime freight, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Average prices for weeks beginning on Fridays indicated. — b) Average prices for weeks beginning on preceding Mondays. — c) Prices Thursday to Saturday of each week. — d) Prices of preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) See note on p. 307 of the *Crop Report* of April 1934. — 3) From Nov. 1933, 51/52 grams each. — 4) Rates for parcels by liners. — 5) May-Oct. 1934 and from 25 Jan 1935, Canadian \$. — 6) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 7) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 8) Minimum rates, see notes on p. 247 and p. 321.

## EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1)

NATIONAL CURRENCIES	Exchange rates				Percentage bonus (+) or loss (-)			
	13 Sept. 1935	6 Sept. 1935	30 August 1935	23 August 1935	13 Sept. 1935	6 Sept. 1935	30 August 1935	23 August 1935
Germany: free reichsmark. . . . .	123.650	123.450	123.250	123.300	+ 0.2	0.0	- 0.2	- 0.1
Argentina: paper peso †) . . . . .	94.844	94.969	95.250	95.094	- 56.9	- 56.8	- 56.7	- 56.8
Belgium: belga. . . . .	51.800	51.600	51.600	51.650	- 0.2	- 0.5	- 0.5	- 0.5
Canada: dollar . . . . .	3.062	3.055	3.052	3.047	- 40.9	- 41.1	- 41.1	- 41.2
Denmark: crown . . . . .	67.750	67.850	68.050	68.100	- 51.2	- 51.1	- 51.0	- 51.0
Spain: peseta . . . . .	42.000	42.000	42.000	41.975	- 58.0	- 58.0	- 58.0	- 58.0
Egypt: pound 2) . . . . .	15.175	15.195	15.240	15.215	- 39.8	- 39.8	- 39.6	- 39.7
United Kingdom: pound sterling . . . . .	3.076	3.072	3.064	3.057	+ 0.5	+ 0.4	+ 0.1	- 0.1
United States: dollar . . . . .	20.257	20.265	20.280	20.260	- 0.2	- 0.2	- 0.1	- 0.2
France: franc . . . . .	58.500	58.500	59.250	59.500	- 35.5	- 35.5	- 34.6	- 34.4
Indo-China: piaster 3) . . . . .	114.571	114.722	115.062	114.873	- 39.4	- 39.4	- 39.2	- 39.3
Hungary: pengő 4) . . . . .	25.100	25.050	25.100	25.075	- 8.0	- 8.2	- 8.0	- 8.1
India: rupee †) . . . . .	89.280	90.030	90.297	89.959	- 65.4	- 65.1	- 65.0	- 65.2
Italy: lira . . . . .	207.750	207.700	207.750	207.250	- 0.3	- 0.3	- 0.3	- 0.5
Japan: yen †) . . . . .	57.900	57.900	57.900	57.850	- 0.4	- 0.4	- 0.4	- 0.5
Netherlands: florin . . . . .	1.775	1.775	3.100	3.100	- 42.7	- 42.7	- 0.0	- 0.0
Poland: zloty . . . . .	78.350	78.350	78.600	78.400	- 43.6	- 43.6	- 43.4	- 43.6
Rumania: leu . . . . .	12.700	12.700	12.715	12.700	- 0.8	- 0.8	- 0.6	- 0.8
Sweden: crown . . . . .								
Czechoslovakia: crown . . . . .								

1) The exchange rate represents the value of 100 units of the national currency (for the dollar and the pound sterling 1 unit) expressed in Swiss francs, as far as possible on the Zurich Exchange. With regard to the currencies marked thus (†) a conversion has been made; the original exchange rates on London being converted into Swiss francs by means of the rate of the £ in Zurich. — 2) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 3) As the relation between the Indo-Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given. — 4) Bank notes.

## VARIATIONS IN THE INDEX-NUMBERS OF PRICES

On the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, it has been considered opportune to reproduce all the data in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

## Percentage variations in the index-numbers for August 1935.

COUNTRIES	Comparison with July 1935		Comparison with August 1934	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany . . . . .	+ 1.2	+ 4.7	+ 0.6	+ 2.3
England and Wales . . . . .	...	- 0.3	...	- 1.1
Argentina . . . . .	+ 3.2	-	- 11.2	-
Canada . . . . .	+ 0.5	+ 0.1	+ 0.3	- 1.0
United States: Bur. of Agric. Economics . . . . .	+ 3.9	-	+ 10.4	-
United States: Bur. of Labor . . . . .	+ 2.8	+ 1.4	+ 13.6	+ 5.4
Finland . . . . .	- 1.3	0.0	+ 5.5	0.0
Hungary . . . . .	0.0	- 1.1	+ 14.5	+ 9.9
Italy . . . . .	+ 6.2	+ 3.2	+ 24.3	+ 19.8
New Zealand . . . . .	+ 0.2	-	+ 0.4	-
Netherlands . . . . .	0.0	- 1.4	- 10.9	- 6.4
Poland . . . . .	...	...	...	...
Yugoslavia:				
plant products. . . . .	+ 12.1	+ 2.4	+ 19.6	+ 6.1
livestock products . . . . .	- 4.5		+ 2.3	



# **INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER <sup>1)</sup>**

DESCRIPTION	August	July	June	May	April	March	August	August	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Germany</b>										
(Statistisches Reichsamt)										
1913 = 100.										
Foodstuffs of plant origin . . . . .	114.5	116.2	115.0	114.5	114.1	114.1	115.7	97.0	108.7	98.7
Livestock . . . . .	88.6	85.9	83.2	80.6	79.2	76.7	73.4	66.8	70.9	64.3
Livestock products . . . . .	109.6	105.5	103.4	103.3	103.1	102.8	104.0	102.1	105.0	97.5
Feeding stuffs . . . . .	103.7	103.8	104.6	104.6	104.8	105.2	108.7	84.0	102.0	86.4
Total agricultural products . . . . .	104.3	103.1	101.5	100.6	100.0	99.3	99.6	87.7	95.9	86.8
Fertilizers . . . . .	65.5	64.4	65.0	65.1	67.3	67.3	67.9	70.2	68.6	70.2
Agricultural dead stock . . . . .	111.1	111.1	111.1	111.1	111.0	111.0	111.4	111.9	111.1	111.6
Finished manufactures ("Konsumgüter") . . . . .	124.1	123.9	123.8	123.9	124.1	124.4	116.7	112.8	117.3	111.7
Wholesale products in general . . . . .	102.4	101.8	101.2	100.8	100.8	100.7	100.1	94.2	98.4	93.3
<b>England and Wales</b>										
(Ministry of Agriculture and Fisheries)										
Average for corresponding months										
of 1911-13 = 100.										
Agricultural products <sup>2)</sup> . . . . .	...	120	117	117	126	119	122	108	119	111
Feeding stuffs . . . . .	80	83	86	88	90	92	101	83	91	85
Fertilizers . . . . .	88	89	89	89	88	88	89	88	90	90
Wholesale products in general <sup>3)</sup> . . . . .	98.9	99.2	98.5	100.2	98.9	97.5	98.1	95.5	96.3	93.7
<b>Argentina</b>										
(Banco de la Nación Argentina)										
1926 = 100.										
Cereals and linseed . . . . .	64.3	62.5	63.5	64.8	66.7	65.9	83.9	57.6	68.1	54.4
Meat . . . . .	88.6	84.7	80.0	77.8	77.9	78.5	80.0	68.4	78.5	65.9
Hides and skins . . . . .	76.3	75.2	77.3	80.7	77.8	74.4	59.6	73.7	71.6	63.9
Wool . . . . .	78.7	75.4	69.2	70.0	65.4	64.4	82.2	52.5	84.3	54.6
Dairy products . . . . .	104.6	100.5	82.6	75.8	75.0	75.8	68.2	67.0	62.3	57.4
Forest products . . . . .	91.8	91.8	90.4	92.8	92.8	91.9	71.6	74.3	73.1	72.5
Total agricultural products . . . . .	71.0	68.8	68.3	69.2	69.7	69.0	80.0	60.2	70.5	56.9
<b>Canada</b>										
(Internal Trade Branch										
of the Dominion Bureau of Statistics)										
1926 = 100.										
Field products (grain, etc.) . . . . .	55.5	55.7	55.1	58.0	59.8	56.4	60.7	55.1	53.9	45.7
Livestock and livestock products . . . . .	72.4	71.1	72.0	74.4	72.9	73.3	63.1	60.6	67.6	59.6
Total Canadian farm products . . . . .	61.8	61.5	61.4	64.1	64.7	62.7	61.6	57.2	59.0	51.0
Fertilizers . . . . .	75.8	75.8	75.8	75.8	75.8	75.8	74.6	75.8	76.2	73.8
Consumers' goods (other than foodstuffs, beverages and tobacco) . . . . .	75.4	75.3	75.7	75.6	75.7	76.1	77.2	75.9	77.2	76.0
Wholesale products in general . . . . .	71.6	71.5	71.5	72.3	72.5	72.0	72.3	69.5	71.6	67.2

<sup>1)</sup> For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696).

<sup>2)</sup> Revised index-numbers due to the Wheat Act payments and, from 1 September 1934, the Cattle Emergency Act payments.

<sup>3)</sup> Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	August	July	June	May	April	March	August	August	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>United States</b>										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100.										
Cereals . . . . .	96	96	102	112	115	111	106	81	93	62
Cotton and cottonseed . . . . .	97	102	103	105	103	102	107	71	99	64
Fruits . . . . .	87	98	100	98	105	90	101	74	100	74
Truck crops (market garden crops) . . . . .	92	93	96	127	156	162	108	95	102	105
Meat animals . . . . .	129	116	119	118	117	117	68	64	68	60
Dairy products . . . . .	98	97	99	107	117	114	97	85	96	82
Chickens and eggs . . . . .	111	107	108	110	105	97	86	69	89	75
Miscellaneous . . . . .	102	85	86	89	92	92	125	116	108	83
Total agricultural products . . . . .	106	102	104	108	111	108	96	79	90	70
Commodities purchased 1) . . . . .	129	126	127	127	127	127	125	112	122	109
Agricultural wages 1) . . . . .	—	99	—	—	94	—	2) 90	2) 78	88	80
<b>United States</b>										
(Bureau of Labor)										
1926 = 100.										
Cereals . . . . .	79.3	78.3	76.9	83.2	87.9	82.8	86.0	64.6	74.5	53.1
Livestock and poultry . . . . .	91.6	82.8	84.8	87.6	85.9	85.8	56.2	45.9	51.5	43.4
Other farm products . . . . .	71.4	72.9	74.3	75.0	74.5	72.1	73.1	62.5	70.5	55.8
Total agricultural products . . . . .	79.3	77.1	78.3	80.6	80.4	78.3	69.8	57.6	65.3	51.4
Agricultural implements . . . . .	93.6	93.6	93.6	93.6	93.6	93.6	92.0	83.2	89.6	83.5
Fertilizer materials . . . . .	66.8	65.7	65.7	65.9	66.0	66.3	64.8	69.0	67.1	65.9
Mixed fertilizers . . . . .	68.1	68.6	74.5	73.1	72.9	72.8	73.0	64.4	72.5	64.5
Cattle feed . . . . .	71.3	78.6	92.2	107.0	104.9	102.2	104.0	78.0	89.4	57.9
Non-agricultural commodities . . . . .	80.6	79.8	80.0	80.0	79.9	79.5	77.8	72.0	76.9	69.0
Wholesale products in general . . . . .	80.5	79.4	78.9	80.2	80.1	79.4	76.4	69.5	74.9	65.9
<b>Finland</b>										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals . . . . .	78	79	79	79	79	79	86	92	82	88
Potatoes . . . . .	83	89	88	84	81	81	42	84	49	77
Fodder . . . . .	55	68	67	66	63	63	63	73	72	72
Meat . . . . .	81	79	72	71	76	78	74	66	71	64
Dairy products . . . . .	84	82	77	75	79	78	75	79	75	75
Total agricultural products . . . . .	77	78	75	74	75	75	73	75	73	74
Wholesale products in general . . . . .	90	90	90	90	90	90	90	90	90	89
<b>Hungary</b>										
(Central Bureau Statistics)										
1913 = 100										
Agricultural and livestock products . . . . .	79	79	75	77	74	73	69	54	—	—
Wholesale products in general . . . . .	89	90	87	86	86	85	81	71	—	—
<b>Italy</b>										
(Consiglio Provinciale dell'Economia										
Corporativa di Milano)										
1913 = 100.										
National agricultural products . . . . .	379.6	357.4	359.6	335.1	331.7	324.8	305.3	268.8	297.9	280.7
Wholesale products in general . . . . .	329.2	319.1	314.5	304.4	298.7	289.4	274.8	282.4	275.8	283.4
<b>New Zealand</b>										
(Census and Statistics Office)										
Average 1909-13 = 100.										
Dairy products . . . . .	90.8	88.7	79.5	80.2	77.6	87.1	82.4	86.2	77.5	84.0
Meat . . . . .	148.0	151.5	150.2	152.8	162.1	162.5	151.6	120.1	152.2	120.7
Wool . . . . .	85.1	84.4	84.8	77.5	78.3	80.1	104.1	73.8	110.0	69.8
Other pastoral products . . . . .	100.7	100.7	98.5	84.5	86.8	92.1	85.1	94.5	80.2	74.5
All pastoral and dairy products . . . . .	105.3	105.2	100.6	99.1	100.7	105.9	105.4	91.8	104.5	88.4
Field products . . . . .	126.3	124.5	124.7	124.8	129.3	125.7	122.0	115.8	120.6	115.8
Total agricultural products . . . . .	106.6	105.8	101.3	99.9	101.6	106.5	105.6	92.5	104.7	89.2

DESCRIPTION	August	July	June	May	April	March	August	August	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934-35 2)	1933-34 2)
<b>Norway</b>										
(Kegl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals . . . . .	143	148	145	143	144	144	134	116	126	112
Potatoes . . . . .	168	240	257	175	147	153	125	168	132	103
Pork . . . . .	107	93	94	90	93	93	80	78	83	81
Other meat . . . . .	161	150	138	142	140	142	149	106	137	110
Eggs . . . . .	99	79	75	67	79	99	84	82	92	85
Dairy products . . . . .	139	139	138	137	135	134	132	127	132	126
Concentrated feeding stuffs . . . . .	125	126	111	113	117	115	103	94	109	96
Maize . . . . .	114	115	95	99	101	101	100	83	101	83
Fertilizers . . . . .	83	78	78	78	78	77	88	92	81	87
<b>Netherlands</b>										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products . . . . .	52	53	58	56	54	52	68	52	58	59
Livestock products . . . . .	48	48	48	47	49	48	51	50	49	53
Total agricultural products . . . . .	49	49	50	50	50	49	55	51	51	55
Agricultural wages . . . . .	69	69	69	69	71	71	71	74	71	74
Wholesale products in general 1) . . . .	49.4	50.1	50.7	50.7	51.4	50.7	52.8	49.4	52.8	50.1
<b>Poland</b>										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products . . . . .	...	33.1	37.2	38.9	34.0	33.2	39.1	35.0	35.6	41.1
Meat animals . . . . .	...	37.5	32.4	30.9	31.0	31.6	37.3	44.1	36.7	42.5
Dairy products and eggs . . . . .	...	38.8	37.5	36.3	39.3	37.7	36.7	45.6	41.2	46.7
Products directly sold by farmers . . . .	...	35.6	35.6	35.8	34.0	33.5	38.1	39.9	37.0	42.6
Flour and groats . . . . .	...	33.8	36.0	38.2	38.4	37.7	41.5	40.2	38.8	47.8
Meat and lard fat . . . . .	...	43.1	37.1	36.0	33.8	34.6	43.1	51.0	43.5	49.8
Sugar, alcohol, beer . . . . .	...	79.3	79.3	79.2	79.3	79.1	90.0	90.3	88.6	90.3
Products of agricultural industries . . . .	...	51.9	50.6	50.8	50.2	50.2	57.9	60.4	56.7	62.4
Total agricultural products . . . . .	...	43.7	43.0	43.2	42.0	41.8	47.9	50.0	46.8	52.4
Commodities purchased . . . . .	...	66.5	66.8	66.9	67.0	67.0	69.8	72.7	70.6	72.9
Wholesale products in general . . . . .	...	52.9	52.6	52.8	52.2	52.1	55.8	57.9	55.8	59.1
<b>Yugoslavia</b>										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products . . . . .	67.6	60.3	60.1	61.2	58.9	61.1	56.5	49.3	57.4	57.2
Livestock products . . . . .	53.1	55.6	58.5	56.5	56.3	55.2	51.9	55.6	55.4	57.1
Industrial products . . . . .	66.4	65.7	65.7	66.4	65.3	64.8	65.3	68.5	67.4	70.8
Wholesale products in general . . . . .	64.8	63.3	63.9	64.0	62.9	63.0	61.1	60.7	63.2	64.4

1) Calculated by the the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100 — 2) Agricultural year: Norway, 1st April-31 March; Netherlands, 1st July-30 June. — 3) Calendar year.

# RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium (2)	Canada (3)	Denmark	Egypt	Spain	United States (4)	France Indo China (5)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czechoslovakia (6)
Germany . . . . .	Reichsmark	1.000	0.561	11.898	0.238	0.889	4.819	1.235	0.403	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	9.648
Argentina . . . . .	Paper peso	1.782	1.000	21.203	0.424	1.584	8.586	2.200	0.718	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	17.191
Belgium . . . . .	Franc (2)	0.084	0.047	1.000	0.020	0.075	0.040	0.104	0.034	0.511	0.082	0.114	0.055	0.380	0.040	0.050	0.178	3.347	0.811
Canada . . . . .	Dollar (3)	4.198	2.356	49.948	1.000	3.731	20.230	5.183	1.693	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	40.501
Denmark/Sweden . . . . .	Crown	1.125	0.631	13.385	0.268	1.000	5.422	1.389	0.454	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	10.854
Egypt . . . . .	Piastre	0.207	0.116	2.469	0.049	0.184	1.000	0.256	0.083	1.262	0.203	0.283	0.135	0.939	0.099	0.123	0.441	8.264	2.002
Spain/Switzerland . . . . .	Peseta/Fr.	0.810	0.455	9.638	0.193	0.720	3.903	1.000	0.327	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	7.815
United States . . . . .	Dollar (4)	2.479	1.391	29.500	0.591	2.204	11.948	3.061	1.000	15.074	2.427	3.377	1.618	11.221	1.185	1.469	5.265	98.737	23.920
France/Indo-China (5) . . . . .	Franc	0.164	0.092	1.957	0.039	0.146	0.793	0.203	0.066	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.587
Great Britain . . . . .	Shilling	1.021	0.573	12.154	0.243	0.908	4.923	1.261	0.411	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	9.856
Hungary . . . . .	Pengo	0.734	0.412	8.736	0.175	0.653	3.580	0.905	0.296	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	7.084
India . . . . .	Rupce	1.532	0.860	18.231	0.365	1.362	7.384	1.892	0.618	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	14.783
Italy . . . . .	Lira	0.221	0.124	2.629	0.053	0.196	1.065	0.273	0.090	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	2.131
Japan . . . . .	Yen	2.092	1.174	24.897	0.498	1.860	10.084	2.583	0.843	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	20.189
Netherlands . . . . .	Florin	1.687	0.947	20.077	0.402	1.450	8.132	2.083	0.681	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	16.280
Poland . . . . .	Zloty	0.471	0.264	5.603	0.112	0.419	2.269	0.581	0.190	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	4.543
Romania . . . . .	Leu	0.025	0.014	0.299	0.006	0.022	0.121	0.031	0.010	0.153	0.025	0.034	0.016	0.114	0.012	0.015	0.053	1.000	0.242
Czechoslovakia . . . . .	Crown (6)	0.103	0.058	1.233	0.025	0.092	0.499	0.128	0.042	0.630	0.102	0.141	0.067	0.469	0.049	0.062	0.220	4.127	1.000

(1) Each quotation shows the par-value of the monies named in the column headed "Unit of currency" calculated in terms of the currency of the Countries printed in the heading. — (2) From 31 March 1933 the franc represents only 72 % of its previous gold value. — (3) Till 31 January 1934 also parity of the United States. — (4) New parity as from 31 January 1934. — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only 1/6 of its previous gold value.

# MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

*The following explanations refer to crop conditions quoted in the crop notes and in the tables — Crop condition according to the system of the country Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U S S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years — For other countries the system of the Institute is employed 100 = crop condition which promises a yield equal to the average of the last ten years*

## WORLD WHEAT SUPPLIES AND REQUIREMENTS

The world wheat crop in 1935 is a rather reduced one, being insufficient to meet consumption requirements. As was the case last year, the gap will have to be filled by drawing upon the stocks carried over from previous harvests. The aim of this study is to examine the statistical position of wheat of this year and to estimate how far this year's crop will fall short of probable requirements and to what extent stocks existing at the beginning of the season will be reduced by the close of the year.

### I. — THE 1935 WHEAT CROP.

The size of the 1935 world wheat crop (1) can be assessed fairly accurately from the official data received by the Institute supplemented by estimates for those countries which have not yet issued official figures. Nearly all the countries of the northern hemisphere have now published their estimates. Those which have not done so are of minor importance and their output can be evaluated sufficiently approximately from data concerning area cultivated and the course of the year. No figures for the wheat producing countries of the southern hemisphere, however, are available except in the case of Australia which recently telegraphed its first estimate to the Institute. For these countries, conjectural figures have been taken but their value is less certain as they are based not on the yields of harvests already accomplished but on the appearance of the standing crops at a time when the final result was still subject to weather conditions for at least another two months. Wheat production in 1935, according to these rather diverse data, appears, as the following table shows, to be plentiful in Europe and Asia, mediocre in Africa and Australasia and distinctly poor in North and South America.

(1) The known world production, that is, excluding that of the U. S. S. R. China, Iran, Turkey and Irak, countries regarding which there is no regular or recent information for a series of years.

# World Wheat Production (1)

(million bushels).

YEARS	Europe 2)	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R.
1923-27 Average . . . . .	1,243	1,210	275	402	108	143	3,381	694
1928 . . . . .	1,409	1,492	399	342	116	168	3,926	807
1929 . . . . .	1,451	1,139	221	384	136	134	3,465	694
1930 . . . . .	1,360	1,323	273	456	115	221	3,748	989
1931 . . . . .	1,435	1,271	264	407	131	197	3,705	753
1932 . . . . .	1,492	1,197	286	393	140	225	3,733	742
1933 . . . . .	1,746	822	345	421	122	184	3,640	3) 1,018
1934 . . . . .	1,537	790	288	431	151	140	3,337	3) 1,117
Forecast 1935 . . . . .	1,540	900	225	445	130	140	3,380	...

1) Not including China, Iran, Turkey and Iraq. 2) Not including U.S.S.R. — 3) Probably over estimated

It has already been pointed out that the estimate of the world crop on the basis of the information available at this time of year can only be considered as a fairly approximate evaluation of the harvest results. Experience suggests that between the estimates made in October and the final figures, there is frequently a not insignificant margin even in the case of official estimates, which are largely preliminary data. In order to provide some indication of the value of these forecasts, the estimates of the crops made in October in the last three years are compared in the following table with the final estimates.

## Forecasts and final data of world wheat production.

(in million bushels).

	1934 crop		1933 crop		1932 crop	
	Forecasts (October 1934)	Final data	Forecasts (October 1933)	Final data	Forecasts (October 1932)	Final data
Europe . . . . .	1,477	1,537	1,670	1,746	1,514	1,492
North America . . . . .	786	790	808	822	1,187	1,197
South America . . . . .	294	288	268	345	276	286
Asia . . . . .	426	431	415	421	397	393
Africa . . . . .	136	151	114	122	132	140
Oceania . . . . .	147	140	195	184	206	225
TOTAL . . . . .	3,266	3,337	3,470	3,640	3,712	3,733

It will be seen that the final results of the last three years for the world as a whole have always been larger than the forecasts, moderately so in 1934, to an insignificant extent in 1932 but to a remarkable degree in 1933 when the revisions of the different continents were all in the same direction instead of partly cancelling out as in the other two years. Will the present forecast of the 1935

world wheat crop of 1935 prove to be an underestimate as in former years? In the case of the southern hemisphere, the possible variations in prospects arising from the conditions of the year make the forecasting of the crop a difficult matter but it would appear that the estimates of the crops of the northern hemisphere correspond fairly closely with expectations.

On the whole, perhaps, the estimates are more conservative than usual and there is reason for believing this year a slight increase rather than a reduction in the totals when the final figures are made up. Thus, it is fairly probable that there will be an increase of about 20-40 million bushels in the European crop total as the estimates of several countries appear very cautious. We are inclined to believe, however, that the figures now available are a fairly accurate measure of the 1935 crop results and, if it is assumed that no surprises will occur in prospects in the southern hemisphere, they form a reliable basis from which to examine the situation of supplies and requirements during the course of this year. We now turn to an examination of the outcome of the wheat harvests as it appears in the present estimates.

Production in Europe is estimated to be almost equal to that of last year. Though it falls short of the record crop of 1933, it is a plentiful crop exceeding the average of 1923-27 by nearly 300 million bushels and that of 1928-32 by about 110 million bushels. This result is due partly to the increase in the area cultivated, which in 1935, at 78.3 million acres, was the largest acreage ever recorded for the Continent, and partly to the high yield per acre. This amounted in 1935 to 19.7 bushels per acre compared with 18.0 bushels per acre, on an average, in the years 1923-27 and 19.5 bushels in the years 1928-32

### *Unit Yields of Wheat (1).*

(bushels per acre)

YEARS	Europe	North America	South America	Asia <sup>2)</sup>	Africa	Oceania	Total <sup>2)</sup>	U.S.S.R.
1923-27 Average	18.0	15.4	13.0	11.4	10.8	12.9	15.0	10.9
1928 . . .	19.8	17.8	15.5	9.5	10.6	11.2	16.1	11.7
1929 . . .	20.7	12.6	11.3	10.7	11.7	8.8	14.3	9.4
1930 . . .	18.4	14.9	11.9	12.8	9.7	12.0	14.9	11.9
1931 . . .	18.9	15.0	13.5	11.3	11.2	13.1	15.2	8.3
1932 . . .	19.8	14.0	13.7	10.6	11.3	14.0	15.0	8.8
1933 . . .	22.5	11.0	15.6	11.3	10.4	12.0	15.2	12.5
1934 . . . .	20.0	11.6	13.7	10.7	12.6	10.8	14.5	12.8
Forecast 1935 . . . .	19.8	11.7	12.8	11.5	10.4	11.9	14.2	...

1) Calculated on the area harvested. — 2) Not including China, Iran, Turkey and Iraq.

We have laid particular emphasis for many years on the continuous improvement in unit yields in European countries as a whole and we have ascribed this to the technical progress of wheat cultivation, which will have a permanent effect on the size of the European crops. The year 1934-35 was not favourable

for agricultural work as was the case also in the preceding year. Although the first stage of growth was accompanied by fairly normal weather conditions, the whole, of the period from March to the harvest was distinctly unfavourable to the growth of the crop owing to the severe drought in the spring, the late frosts experienced from March to May, and the excessively hot, wet and stormy summer. Yet, in spite of these conditions, the average yield of 19.7 bushels per acre was distinctly higher than the lowest yields recorded in the most unfavourable years, viz, 15.8 bushels per acre in 1924, 17.4 in 1926, 17.9 in 1927 and 18.4 in 1930. It seems clear that the results obtained during the last two particularly unfavourable years fully confirm the efficacy of improved cultural technique on the size of the European wheat crop. This is not to say that technical progress has neutralised the influence of adverse weather or rendered wheat production independent of sun and rain. There will always be variations in harvests from year to year resulting from the good or bad conditions of the growing season but these variations will oscillate about a point appreciably higher than that of 10 years ago. It is chiefly owing to this increase in the European wheat crop that the import requirements of the Continent have fallen so substantially and that they appear destined never again, at least in the near future, to reach the large figures of ten years ago.

In North America, the crop is poor, for the third year in succession, being only slightly above those of 1933 and 1934, the lowest recorded for many years. This is the result partly of the considerable loss of the area sown to winter wheat in the United States following drought and frosts and partly of the mediocre yield of spring wheat in both Canada and the United States resulting from the invasion of black rust which caused serious damage to both the quantity and the quality of the grain.

Wheat production in Asia, however, is plentiful, owing chiefly to the good results obtained in India and Japan.

Production in Africa is poor, the losses caused by the spring drought in Morocco being only partly offset by the good yields secured in Tunisia and by the fair outturn anticipated in the Union of South Africa, while the crops in Algeria and Egypt do not vary appreciably from the average.

Turning to the southern hemisphere, a considerable decrease from both last year's total and the average is anticipated in South America as a result of the low crop that is expected to result in Argentina from the contraction in area and from the long drought. In Australia production is expected to be about the same as last year but appreciably below average.

To sum up, the world crop in 1935 appears from present statistics and forecasts as the smallest harvested since 1924 except only that of 1934. In the exporting countries as a whole, production is poor, being only 4 % better than that of 1934 which was the lowest of post-war years. None of the four chief exporting countries reports a satisfactory harvest. This coincidence is of rare occurrence.

The total outturn of the importing countries, though slightly below those of the last three years, is fairly large and appreciably exceeds all those obtained before 1932.



## II. — EXPORTABLE WHEAT SUPPLIES.

The quantity of wheat remaining in a country after allowance has been made for internal requirements is, as usual, taken as the amount available for export. Internal requirements consist of the quantity necessary for consumption (human and animal consumption, seed, etc.) and for normal carryover, that is, the reserves necessary for the gap between one season and the other. In former years, we have considered a quantity equal to one month's normal consumption as a normal carryover. Experience indicates that this criterion does not correspond sufficiently to reality, as in no case have the quantities remaining at the end of the year in the large exporting countries, especially those of North America, even in years of heavy external demand, fallen as low as the reduced figure we adopted. Therefore, in order to bring the statistics more closely in accordance with the actual position, we have decided to modify the criterion adopted in the past for exportable supplies by substituting the minimum carryover observed in a long series of years for the theoretic carryover of one month's consumption. As a result of this modification, the figures of exportable supplies and those of exportable end-of-season stocks in the exporting countries are an entirely different series from those published in the *October Crop Reports* of previous years.

The export position in the various exporting countries is as follows:

*North America.* — For the third successive year, the crop in the United States is smaller than the internal requirements of the country. Total production in 1935 is estimated at 600 million bushels. Theoretically this quantity, when added to the stocks remaining from previous harvests, estimated at the beginning of this season at 172 million bushels, brings total supplies up to about 772 million bushels, an amount sufficient to meet internal requirements which are estimated at 730 million bushels (625 million for consumption, fodder and seed and 105 million for the minimum carryover). It would still leave an exportable surplus of over 40 million bushels. It should be observed, however, (a) that the wheat produced in 1935 is lighter than normal in weight and the quality of the grain, apart from its weight, is generally rather unsatisfactory, a not insignificant proportion of the total consisting of grain unsuitable for milling, owing to the damage resulting from rust, scorching and poor ripening and (b) that some varieties of spring wheat, particularly those for bread, have yielded so poorly that it will be necessary to import similar types of Canadian grain to make up the deficit. As the first factor indicates that the domestic utilisation, expressed in bushels, is likely to be greater than usual we are inclined to believe that the figure of 40 million bushels, given as theoretically exportable, will in practice be absorbed by an increase of the internal requirements or reduced to negligible proportions. As for the imports necessary to make up the low supplies of millable spring wheat these are estimated by the Department of Agriculture at Washington at about 35 million bushels. It is evident that the quantity thus imported and milled for home

consumption, will free an equal quantity of domestic wheat which will be exported or, more probably, accumulated as end-of-season carryover. We are confident, therefore, that supplies and requirements of wheat in the United States are practically equal, but we calculate for the United States an exportable surplus of 35 million bushels to make allowance for the increase of the end-of-season carryover brought about by probable import of certain types of wheat. This surplus is balanced by an increase of import requirements of the same magnitude which appear among those attributed to non-European importing countries.

Total Canadian supplies for this year consist of 291 million bushels of new crop and 214 million of stocks from previous harvests, making a total of 505 million bushels. In Canada also there have been considerable rust losses, nearly one fifth of the wheat harvested being reported unsuitable for milling. The absorption of this wheat presents a problem for this year as the plentiful outturn of the other fodder cereals and the lower prices of these compared with wheat makes the disposal of low grade wheat for stock feeding on the internal market a difficult matter and placing it on external markets will meet with similar difficulties. On the whole, it appears that domestic requirements in Canada will only slightly exceed those of last year. They may, therefore, be estimated at 113 million bushels, and, if allowance is made for a minimum carryover of 27 million bushels, exportable supplies of Canadian wheat this year will amount to 365 million bushels, compared with 350 millions last year and an average of 362 millions during the five preceding years.

*Argentina and Australia.* — Estimates of the exportable surpluses of the two great exporting countries of the southern hemisphere, being based on forecasts of probable production formulated some months before the harvests, can only be very roughly assessed as the crops may prove to be very different from those indicated at present.

In Argentina the year has been unfavourable from the outset. The persistent drought has impeded cultivation, hindered sowings and delayed germination in several important producing areas. The area cultivated to wheat in the whole of the country is smaller by 25 %. In the province of Buenos Aires however, where a large proportion of the wheat crop is grown, conditions have been more favourable and sowings, although behindhand, were carried out in a fairly satisfactory way. The rains of the beginning of October were favourable for the crops and germination occurred in some fields which were thought to have been completely lost. The final result remains more than ever subject to the course of the year up to the time of harvesting. If weather conditions are favourable an average yield may yet be expected and a total outturn may be forecast of 175 million bushels compared with 238 millions last year and an average of 228 millions in the preceding five years. If this forecast proves correct, the new crop would provide an exportable surplus of 85 million bushels after allowance is made for internal requirements of 90 millions. When the 53 millions of exportable stocks from the old crop existing in the country on 1 August are added to the exportable surplus of new wheat, the exportable supplies of Argentine wheat in 1935-36 would appear to amount to 138 million

bushels. They would thus be much below the figure of last year, estimated at 234 million bushels and also substantially below the average of the five preceding years which was 190 million bushels.

The preliminary official estimate of production in Australia was issued a short time ago and, at 135 million bushels, appears to be almost equal to that of last year, notwithstanding a decrease of 5 % in the area cultivated and the rather unfavourable course of the year in some of the important producing areas where rains were insufficient. If this forecast is confirmed, the new crop, after a deduction of 50 million bushels for domestic consumption, would leave an exportable surplus of about 85 million bushels. If the stocks of wheat existing on 1 August, estimated at 47 million bushels, are added to this figure, total exportable supplies in 1935-36 amount to 132 million bushels. Thus Australia will also have this year a much smaller exportable supply than that of last year (153 millions) and the average of the preceding five years (169 million bushels).

To judge from these estimates the two important countries of the southern hemisphere taken together will have exportable supplies smaller than those of last year by 117 million bushels.

*India.* — Wheat production this year in India is slightly in excess of the normal requirements of the country. It may leave a margin for export, possibly of some magnitude, if international prices continue to improve and especially if the outlook for the crop of the coming spring is favourable. At the moment, however, the placing of substantial quantities on the external market does not appear probable.

*U. S. S. R.* — No official estimate of the size of the 1935 crop has been issued up to the present, but information from various sources all points to the good results this year, particularly in the southern zones, where practically most of the wheat for export is grown. It is thus assumed everywhere that the U. S. S. R. will have a surplus for export this year but a real basis on which attempt to assess the size of this surplus is lacking. The forecasts, or rather the conjectures, made on this matter vary from 20 to 40 million bushels. Our own opinion inclines rather to the latter figure which we shall adopt until the the situation of Russian wheat supplies becomes clearer.

*European Exporting Countries.* — The four exporting countries of the Danube basin, Poland and Lithuania had a better crop, on the whole this year than the very poor one of last year, but it is smaller than the average of the five years 1929 to 1933. A long drought in the spring considerably reduced the crop of this group of countries as in the year 1934 but the damage inflicted this year is less serious. Moreover, these countries secured a good crop of rye, a cereal which competes to a great extent with wheat in Poland, Hungary and Lithuania. They obtained a mediocre or poor crop of maize which, in Romania, Bulgaria and Yugoslavia, is used a great deal for human consumption. The stocks of old wheat existing in these countries at the beginning of the new year appeared in most cases to be fairly low. This year's wheat production,

to judge from the present estimates, can only afford a very modest surplus for export. However, having regard to the need of financial means for the balance of international payments in several of these countries and to the conservative character of the preliminary crop estimates, we believe that their exports will probably reach a total of 40 million bushels compared with 26 millions actually exported in 1934-35 and with an average of 48 millions in the preceding five years.

*North Africa and other countries.* — The three exporting countries of North Africa secured crops differing much from each other. Production was nearly average in Algeria, plentiful in Tunisia and very low in Morocco. Barley showed almost the same results as wheat. Moreover, all three countries at the beginning of the year held large stocks from the excellent crop of 1934 which make it possible for them to maintain a fairly considerable flow of exports also during this year. After taking account also of the small quantities likely to be exported by the other surplus producing countries, Turkey, Iran, Irak, Chile and Uruguay, the exportable surplus of North Africa and other countries may be estimated at about 33 million bushels.

To sum up these various estimates, it appears that the supplies available in 1935-36 for the importing countries amount in all to barely 800 million bushels, or a decrease of nearly 100 million bushels from the supplies of last year which had themselves been reduced by about 224 millions

*Exportable supplies of wheat.*

(million bushels)

SEASONS	Canada	United States	Argentina	Australia	U.S.S.R.	India	Danub. countries 1)	North Africa 2)	Afloat	Totals
1926-27 . . . . .	320	220	195	130	49	11	44	2	39	1,010
1927-28 . . . . .	387	229	246	95	3	8	31	15	46	1,060
1928-29 . . . . .	495	317	331	136	0	0	34	17	45	1,375
1929-30 . . . . .	293	362	186	99	10	0	55	20	37	1,062
1930-31 . . . . .	382	343	173	200	113	0	51	23	39	1,324
1931-32 . . . . .	317	432	173	192	65	2	84	27	38	1,330
1932-33 . . . . .	453	349	182	191	17	0	12	24	30	1,258
1933-34 . . . . .	366	233	237	161	35	0	36	24	32	1,124
1934-35 . . . . .	350	67	234	153	2	1	26	31	35	900
Forecast 1935-36 . . . . .	365	3) 35	138	132	40	0	40	33	17	800

1) Including Poland and Lithuania — 2) Including the other minor exporting countries. —

3) See text page 749.

Canada, alone among the four exporting countries, shows an increase in its exportable surplus, while the United States, Argentina and Australia show very noticeable decreases. For these four chief exporting countries as a whole, there is a decrease of 134 million bushels while the increase in exportable supplies in the U. S. S. R. and lesser exporting countries can offset this quantity only very slightly.

## III. — REQUIREMENTS OF THE IMPORTING COUNTRIES.

*European importing countries.* — As a result of the rapid increase in the crops of most European countries which has occurred in recent years, many of them have had crops in excess of their domestic requirements and have been obliged to dispose of part of their surplus on foreign markets. They have thus become exporters of wheat. It should be pointed out that for the purposes of this study all those countries whose outturn is normally insufficient to meet consumption requirements are considered as importing countries. Thus we continue to place in the category of importing countries even those which in exceptional circumstance become temporary exporters. This has been the case in recent years for Germany, France, Sweden, Latvia, etc. In short, all countries in Europe have been treated as importing countries with the exception of the four Danubian countries, Poland and Lithuania, which form a group of normally exporting countries. It should be added that, the various importing countries being considered as a group, the possible exports of some of these countries are deducted from the total imports of all the other importing countries, in order that the result thus obtained may represent the net imports of the European importing group in each year.

The 1935 harvest of this group of countries is estimated at 1,165 million bushels, an increase of 135 millions, or 13 %, on the average of 1928/32 and one of 245 millions, or 26 %, on that of 1923 '27. It is, nevertheless, 126 millions, or 10 %, smaller than the record crop of 1933, and 36 millions, or 3 %, smaller than the production of last year. The decrease in the crop compared with last year is largely the outcome of the poor results secured in France, Spain, Portugal and Sweden, these countries, taken together, returning a decrease of 98 million bushels, while in the other countries the results are either about the same as those of 1934 or substantially larger as in Italy, Czechoslovakia and Greece. An interesting feature of the 1935 crop, evidently connected with the alternation of good and bad years, is the fact that the lowest crops were obtained by the countries which held large stocks of the plentiful crop of 1934. In the other countries, the stocks carried over to this year appear, on the whole, to be a little smaller than usual. This situation gives rise to the question of how much wheat can be absorbed by the consumption of the European importing countries and how much should be imported from foreign markets during the course of the present season. According to their available wheat supplies the various countries may be classified as follows.

(1) Countries holding sufficient (or over-abundant) supplies compared with internal requirements: Germany, Spain, Estonia, France, Latvia, Portugal, Sweden and Czechoslovakia. Last year the net exports of France, Sweden and Latvia were 21 million bushels. The other countries, on the other hand, recorded net imports of 12 millions. On balance, therefore, this group is seen to have made net exports of 9 million bushels in 1934-35. This year France will not be able to place abroad the large quantities which were disposed of last year in its great effort to relieve its market. It is, nevertheless, probable, that it will

export part of the low grade wheat it now holds, the disposal of which will be facilitated by the improvement in international prices. In this way, it will almost balance imports from North Africa which, for this year, are estimated at about 12 million bushels. In the other countries of this group, there is no reason for expecting a considerable trade movement, either from the demand side or the supply. Though small quantities may be imported by Germany and Czechoslovakia, they will be offset by the small exports to be expected from the Baltic sea countries (Sweden, Estonia and Latvia) and these will almost neutralise each other.

(2) Countries whose production largely covers internal requirements: Austria, Greece, Italy. These three countries, which last year imported 37 million bushels, have all secured much larger crops than they did in 1934. Italy may even dispense entirely with imports in view of the size of its crop this year. It may be expected that the requirements of this group in 1935-36 will not appreciably exceed 25 million bushels.

(3) Countries whose supplies are much below their internal requirements: the United Kingdom, Ireland, the Belgo-Luxemburg Union, the Netherlands, Switzerland, Denmark, Finland and Norway. The European demand on the world wheat market depends essentially this year on the capacity of this small group of countries. In all these countries, there has been a remarkable and continuous increase in wheat production in recent years. From an average of 85 million bushels in the years 1928-1932, it rose to 115 millions in 1933, 130 millions in 1934 and to 120 millions this year, an increase of 40 % on the average.

Last year these countries imported 327 million bushels, a not inconsiderable part of which consisted of low grade wheat which competed advantageously in price with other fodder cereals. This year, with the cheapness of fodder cereals, maize in particular, and the rise in the price of wheat, the comparative advantage in price has disappeared and will no longer be present as a stimulant to the demand for fodder wheat. On the other hand, most of these countries have considerably reduced the carryover stocks, a normal result in importing countries of a long period of low prices. It is very probable that, as a result of the modified trend of prices in the wheat market, several countries will now proceed with the building up of their depleted reserves and thus increase their demand. Thus, in view of these contrasting factors, we are inclined to forecast for this group in 1935-36 a demand of about 330 million bushels, that is nearly equal or possibly a little larger than that of last year. This, we estimate, will be distributed as follows: 224 millions for the United Kingdom and Ireland, 40 millions for the Belgo-Luxemburg Union, about 20 millions for Switzerland, the same for the Netherlands and 26 millions for Denmark, Norway and Finland.

To sum up, the total import requirements of all European countries during the year 1935-36 is to be expected to amount to about 355 million bushels, an amount exactly equal to that recorded in 1934-35 which was the lowest recorded since the war. The figures of production, probable imports and apparent consumption in Europe this year compared with those of former years are set out below.

*Production and apparent consumption of wheat in Europe.*

(million bushels).

YEARS	Importing Countries			Exporting Countries (1)			Total Europe		
	Production	Net Imports	Apparent consumption	Production	Net exports	Apparent consumption	Production	Net imports	Apparent consumption
1925-26. . . . .	1,037	531	1,568	366	49	317	1,403	482	1,885
1926-27. . . . .	865	661	1,526	350	44	306	1,215	617	1,832
1927-28. . . . .	935	657	1,592	339	31	308	1,274	626	1,900
1928-29. . . . .	976	657	1,633	433	34	399	1,409	623	2,032
1929-30. . . . .	1,073	515	1,588	378	55	323	1,451	460	1,911
1930-31. . . . .	917	618	1,535	445	51	394	1,362	567	1,929
1931-32. . . . .	973	613	1,586	462	84	378	1,435	529	1,964
1932-33. . . . .	1,213	446	1,659	279	12	267	1,492	434	1,926
1933-34. . . . .	1,291	393	1,684	455	36	419	1,746	357	2,103
1934-35. . . . .	1,201	358	1,559	336	26	310	1,537	332	1,869
1935-36 (Forecast)	1,165	355	1,520	375	40	335	1,540	315	1,855

(1) Bulgaria, Hungary, Romania, Yugoslavia, Poland and Lithuania.

*Non-European Importing Countries.* — The net imports of these countries vary every year around 180 million bushels. The variations shown from year to year above and below this level generally reflect only the variations in the demand of a very limited number of countries, namely, China, Manchukuo, Japan, Egypt and the Union of South Africa, which, themselves growing wheat and having a fairly considerable domestic production, regulate their wheat imports according to the volume of their own crops each year. More rarely, the variations are the result of the peculiar position of some non-European exporting country, which, after an abnormally poor domestic crop, is without sufficient resources to cover consumption requirements and is obliged to have resort to imports to bridge the gap.

Most of the non-European importing countries show almost constant imports, including Brazil which is one of the chief wheat buyers of this group. Thus to form a clear idea of the probable requirements of these importers, it is only necessary to consider the variations which may occur in the requirements of the small group of five countries mentioned above and to take into account the additional demand from some extra-European exporting country which may find it necessary to import supplies. Among the five countries whose imports vary, China and Manchukuo are those which show the widest changes from one year to another. China, which imported nearly 21 million bushels last year, obtained a mediocre production in 1935 owing to the drought in the north and to torrential rains in the centre. The decrease in the crop compared with 1934 is estimated at 15 to 20 %. There is, therefore, the possibility of an increase in Chinese demand this year, but the difficulties of the balance of international payments of the country and, above all, the increase in wheat prices in the international wheat market are serious obstacles to a substantial

growth in imports. In Manchukuo, on the other hand, where the crop of this year was much better than the very poor one of 1934, import requirements are much smaller than they were last year. It would thus appear that for these two countries probable import requirements this year, if not smaller, will be at most equal to those of last year.

In Japan, where wheat growing is progressing steadily, the crop is slightly larger than last year's which was itself a record. Owing to the impulse given to internal production, import requirements are decreasing from year to year. Net imports reached an average level of 18 million bushels up to the year 1931-32 and then dropped to 6 millions in 1932-33, to 4 millions in 1933-34 and to 2 millions last year. There are grounds for expecting a further, if small, decrease this year.

In the case of Egypt which imported 2 million bushels last year, an appreciable decrease is to be expected, the crop being 16 % larger than it was in 1934. In the Union of South Africa where production promises to be very plentiful, there is no reason for expecting a large demand for wheat. We estimate a slight decrease in requirements in the Far East, Egypt and the Union of South Africa. After allowing for the effect which the increase in world wheat prices will have on all the other non-European importing countries, we estimate a total decrease for this group of about 20 million bushels. Last year's imports having amounted to 171 million bushels, requirements this year will thus be, in round figures, about 150 million bushels. To this total must be added about 35 million bushels which will probably be imported by the United States to make up for the reduced outturn of certain types of wheat. In all, therefore, the demand of the non-European countries will amount this year to about 185 million bushels.

*World Requirements.* — In conclusion, the total supplies necessary to cover probable import requirements in 1935-36 appear according to the information and estimates available at present, to be 355 million bushels for Europe and 185 millions for non-European countries, making a total of 540 millions. This total compares with 529 millions actually imported in 1934-35 and 545 millions in 1933-34. The estimates of probable shipments published by Mr. Broomball gave a total of 540 million bushels. The Secretary of the Wheat Advisory Committee places the total at 525 millions and Stanford University at 560 millions.

#### IV. — THE SITUATION OF WHEAT SUPPLIES AND REQUIREMENTS.

The chief features of the world statistical situation of wheat this year are the following.

World wheat production, excluding the crop of the U. S. S. R., although showing a slight increase over the very reduced figure of last year, is the poorest recorded since 1924. Production in Russia, on the other hand, appears to be plentiful, but no official estimate of its size is yet to hand.

In the group of exporting countries, none of the four chief exporters reporting a satisfactory crop, production in 1935 is poor, being only 4 % larger than the crop of 1934, which was the lowest recorded in post-war years. Production in



the importing countries, although somewhat smaller than in any of the preceding three years, is fairly good and appreciably better than any obtained before 1932.

After taking into account the still large stocks existing in the exporting countries at the beginning of the year, world exportable supplies in 1935/36 appear to be 100 million bushels smaller than those of last, or 11 %, and are thus the lowest recorded during the last ten years. They are now estimated at 800 million bushels, consisting of 370 millions of old crop exportable stocks and 430 millions only of surplus provided by the production of 1935.

*World Production, Trade and Stocks of Wheat*  
(million bushels).

SEASON	World Production				World exportable supplies			World import requirements	World exportable end-of-season stocks
	Total 1)	Exporting countries	Importing countries	U. S. S. R.	Total	Aggregate excluding U. S. S. R.	U. S. S. R.		
1926-27 . . .	3,396	2,397	999	914	1,010	961	49	819	191
1927-28 . . .	3,611	2,534	1,077	797	1,060	1,057	3	808	252
1928-29 . . .	3,926	2,849	1,077	807	1,375	1,375	0	888	444
1929-30 . . .	3,465	2,242	1,223	694	1,062	1,052	10	669	434
1930-31 . . .	3,748	2,686	1,062	989	1,324	1,211	113	825	499
1931-32 . . .	3,705	2,579	1,126	753	1,330	1,265	65	808	523
1932-33 . . .	3,733	2,371	1,362	742	1,258	1,241	17	629	624
1933-34 . . .	3,640	2,200	1,440	1,018	1,124	1,089	35	545	579
1934-35 . . .	3,337	1,977	1,360	1,117	900	898	2	529	371
Forecast 1935-36	3,380	2,045	1,335	...	800	760	40	540	260

(1) Excluding U. S. S. R., China, Turkey, Iran and Iraq.

The probable requirements of the importing countries, on the other hand, are considered to be a little larger than in 1934-35. In Europe, the same total as that of last year, which was very low, is expected but the requirements of the non-European countries are somewhat greater if the probable import demand of the United States of about 35 million bushels is included. The total of world import requirements are estimated at 540 million bushels compared with 529 millions in 1934-35. When the requirements of the importing countries for this year (540 millions) are compared with the exportable supplies of the surplus producing countries, it appears that the exportable surplus provided by the 1935 crop (430 millions) is insufficient to meet the probable demand of the importing countries. It will, therefore, be necessary to draw upon old crop stocks as much as 110 million bushels. Hence it may be concluded that exportable stocks, which were 370 millions at the beginning of the year and which had already been considerably reduced in 1934-35, will this year be further reduced by 110 million bushels with the result that on 1 August 1936 they will hardly amount to 260 million bushels. There is thus a prospect of a radical improvement in the stock situation which has been for several years a very troublesome element in the world market. At the end of this season stocks should fall to the level of 1928 before the wheat crisis, which may be considered a normal position.

Notwithstanding the improvement in the world wheat market indicated in the statistical situation of this season, the level of world prices is still far from that which existed normally before the crisis, although an appreciable rise occurred during the first quarter, August-October of 1935-36. It seems, that the present relative inertia of prices is the outcome of the fact that the present equilibrium of wheat supplies and requirements is being achieved not by the normal adjustment of supply and demand but as the result of abnormal factors (namely the disastrous North American drought of the spring of 1934 and the black rust invasion in North America in 1935) which, being exceptional, cannot be expected to recur continually.

G. CAPONE.

## APPENDIX

In the following notes are given the detailed data on which the estimates contained in the present study are based.

### I. — EXPORTABLE STOCKS REMAINING FROM PREVIOUS PRODUCTION.

The exportable stocks residual from the previous production in existence on 1 August compared with those for the preceding five seasons have been calculated, for the four large exporting countries only, in the manner indicated below. The stocks in existence in the other exporting countries are excluded because there is an absence of data for exactly estimating them.

UNITED STATES. — The official statistics record the stocks of home grown wheat in the United States on 1 July. In addition to these stocks there must also be taken into account those of U. S. A. grain admitted free into Canada and lying there on 1 July. These were as follows in million bushels.

Stocks	1928	1929	1930	1931	1932	1933	1934	1935
On farms . . . . .	20	45	60	38	93	82	60	42
In interior mills and elevators . . . . .	19	42	60	30	42	64	48	31
Commercial wheat in store	42	96	109	204	168	124	81	22
In merchant mills and elevators . . . . .	32	48	47	22	65	97	76	46
In transit to merchant mills	11	16	15	13	10	16	14	7
Stored for others by merchant mills . . . . .	...	...	12	19	7	10	7	4
Flour in terms of wheat .	18	19	18	14	16	15	20	18
TOTAL . . . (1)	150	(1) 270	321	340	401	408	306	(2) 172
U. S. A. wheat in bond in Canada . . . . .	3	3	5	15	16	4	0	0
TOTAL STOCKS . . .	153	273	326	355	417	412	306	172
Less minimum carry-over .	105	105	105	105	105	105	105	105
EXPORTABLE STOCKS . .	48	168	221	250	312	307	201	67

(1) Raised to represent all items and rounded. — (2) Exclusive of Canadian wheat in bond but including 1.5 million bushels of wheat of foreign origin.

CANADA. — Official statistics record the subjoined estimates of residual stocks of wheat and flour in Canada on 1 August. In addition to these stocks there must also be taken into account those of Canadian grain admitted free into the United States and lying there on 1 August. They amounted to the following quantities in million bushels.

	1928	1929	1930	1931	1932	1933	1934	1935
In Canada . . . . .	78	104	111	134	132	212	194	203
In U. S. A. . . . .	14	24	17	6	5	7	10	11
TOTAL STOCKS . . .	92	128	128	140	137	219	204	214
Less minimum carry-over	27	27	27	27	27	27	27	27
EXPORTABLE STOCKS . .	65	101	101	113	110	192	177	187

ARGENTINA. — Taking into account exports and stocks on 1 January the exportable stocks on 1 August of each year were as follows in million bushels.

	1928	1929	1930	1931	1932	1933	1934	1935
Exportable stocks . . .	68	109	35	49	33	50	90	53

AUSTRALIA. — Taking into account exports and stocks on 1 December exportable stocks on 1 August are indicated below in million bushels.

	1928	1929	1930	1931	1932	1933	1934	1935
Exportable stocks . . .	26	29	38	49	38	43	77	47

The aggregate figures of the exportable stocks at the end of the season for the four large exporting countries as well as those of the floating supplies are as follows.

*Exportable wheat stocks at end of season.*

(million bushels).

YEARS	United States 1)	Canada 2)	Argentina	Australia	Quantity afloat	Totals
1927 . . . . .	46	26	49	24	46	191
1928 . . . . .	48	65	68	26	45	252
1929 . . . . .	168	101	109	29	37	444
1930 . . . . .	221	101	35	38	39	434
1931 . . . . .	250	113	49	49	38	499
1932 . . . . .	312	110	33	38	30	523
1933 . . . . .	307	192	50	43	32	624
1934 . . . . .	201	177	90	77	35	580
1935 . . . . .	67	187	53	47	17	371

1) Including domestic wheat in store in Canada. — 2) Including domestic wheat in store in the U. S. A.

## II. — CONSUMPTION OF THE EXPORTING COUNTRIES.

In the following tables are given for each country the data on which the figures of home consumption in the four large exporting countries have been based.

**NORTH AMERICA.** — On the basis of the official data of production, commerce and stocks, wheat consumption in Canada and the United States in recent seasons may be calculated as follows in million bushels.

<i>Canada</i>	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35
Production . . . . .	567	305	421	321	443	282 (1)	276
+ Interior Stocks on							
1 August . . . . .	78	104	111	134	132	212	194
= Available supplies on							
1 August . . . . .	645	409	532	455	575	494 (2)	476
— August-July net ex-							
ports . . . . .	404	185	258	206	263	193	164
— Interior Stocks on 31							
July . . . . .	104	111	134	132	212	194	203
= Consumption . . . . .	137	113	140	117	100	107 (2)	109

1) Officially reported as underestimated by about 6 million bushels — 2) Taking account of the yield underestimation.

<i>United States</i>	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35
Production . . . . .	913	822	890	932	746	529	497
+ Interior Stocks on							
1 July . . . . .	150	270	321	340	401	408	306
= Available supplies on							
1 July . . . . .	1,063	1,092	1,211	1,272	1,147	937	803
— July-June net exports	145	143	115	126	35	28 (1)	1
— Interior stocks on 30							
June . . . . .	270	321	340	401	408	306	172
= Consumption . . . . .	648	628	756	745	704	603	632

(1) Net imports.

**ARGENTINA.** — On the basis of official data, the consumption in the last five years is estimated as follows:

	1928	1929	1930	1931	1932	1933	1934
Million bushels . . . . .	77	86	86	90	90	90	90

**AUSTRALIA.** — On the basis of official data for production and trade the consumption in the last five years is estimated as follows.

	1928	1929	1930	1931	1932	1933	1934
Million bushels . . . . .	47	50	57	52	47	55	50

### III. — EXPORTS.

The quantities of wheat (with flour reduced to the corresponding equivalents in grain) exported during the last seasons (1 August-31 July) from all the principal exporting countries are given in the following table. The data refer to net exports, that is, exports less imports.

#### *World wheat exports.*

Country	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35
Canada . . . . .	395	191	269	208	259	190	164
United States . . . . .	148	140	93	120	42	32	(2) 3
Argentina . . . . .	222	151	124	140	132	147	181
Australia . . . . .	107	61	151	154	148	84	106
India . . . . .	(1) 25	0	(1) 5	2	(1) 1	0	1
Bulgaria . . . . .	0	(1) 1	6	11	3	4	0
Hungary . . . . .	25	29	18	18	7	29	13
Poland and Lithuania . . . . .	(1) 3	0	5	3	1	2	5
Romania . . . . .	0	3	16	37	0	0	4
Yugoslavia . . . . .	9	23	6	15	1	1	4
Turkey, Iran and Iraq . . . . .	(1) 6	0	3	4	1	3	4
Algeria . . . . .	3	5	10	6	9	12	13
Tunisia . . . . .	5	6	6	9	5	0	4
Morocco . . . . .	4	4	2	8	6	8	8
Chile and Uruguay . . . . .	5	5	2	0	(1) 3	1	2
TOTALS . . . . .	923	618	711	735	614	513	509
U. S. S. R. . . . .	(1) 5	10	113	65	17	35	(1) 2
WORLD EXPORTS . . . . .	923	628	824	800	631	548	511

(1) Net imports, not included in the totals.

Taking account, however, of the fact that for several years part of the exports from Canada and the United States has not actually been shipped overseas but has passed from one to the other of these countries to remain in store at its destination, there has been deducted from the total exports above indicated, the amounts of which are increased from the beginning to the end of each season, the stores of Canadian wheat in the United States and those of United States wheat in Canada. On the other hand the inverse operation has been carried out when the amounts stored have decreased.

### IV. — IMPORTS AND APPARENT CONSUMPTION OF EUROPE.

The data of production, net imports and exports and apparent consumption of the various European countries, grouped as importing and exporting countries respectively, are given in the following table. The figures of wheat include flour reduced to its equivalent in grain.

*Production and apparent consumption of Europe.*

(Million bushels).

COUNTRIES	Pro- duction in 1932	Trade 1932-33	Appar- ent con- sumption 1932-33	Pro- duction in 1933	Trade 1933-34	Appar- ent con- sumption 1933-34	Pro- duction in 1934	Trade 1934-35	Appar- ent con- sumption 1934-35
<i>A. — Importing countries :</i>		<i>Imports</i>			<i>Imports</i>			<i>Imports</i>	
Germany . . . . .	184	5	189	206	(1) 5	201	167	10	177
Austria . . . . .	12	13	25	15	10	25	13	10	23
Belgium and Luxemburg . . . . .	16	39	55	16	43	59	17	40	57
Denmark . . . . .	11	12	23	11	13	24	13	19	32
Spain . . . . .	184	0	184	138	0	138	174	0	174
Estonia . . . . .	2	0	2	2	0	2	3	0	3
Finland . . . . .	1	4	5	2	4	6	3	4	7
France . . . . .	334	33	367	362	17	379	339	1) <sup>1</sup> 18	321
Gr. Brit. and N. Ireland . . . . .	44	215	259	62	218	280	70	200	270
Greece . . . . .	17	20	37	28	11	39	26	15	41
Irish Free State . . . . .	1	18	19	2	20	22	4	17	21
Italy . . . . .	277	11	288	298	9	307	233	12	245
Latvia . . . . .	5	0	5	7	0	7	8	0	8
Norway . . . . .	1	8	9	1	8	9	1	9	10
Netherlands . . . . .	13	27	40	15	23	38	18	19	37
Portugal . . . . .	24	1	25	15	1	16	25	1	26
Sweden . . . . .	26	3	29	29	1	30	28	1) <sup>1</sup> 2	26
Switzerland . . . . .	5	23	28	6	18	24	7	19	26
Czechoslovakia . . . . .	54	12	66	73	0	73	50	1	51
Other countries . . . . .	2	2	4	3	2	5	2	2	4
<i>Totals . . .</i>	<i>1.213</i>	<i>446</i>	<i>1.659</i>	<i>1.291</i>	<i>393</i>	<i>1.684</i>	<i>1.201</i>	<i>358</i>	<i>1.559</i>
<i>B. — Exporting countries :</i>		<i>Exports</i>			<i>Exports</i>			<i>Exports</i>	
Bulgaria . . . . .	48	3	45	55	4	51	40	0	40
Hungary . . . . .	64	7	57	96	29	67	65	13	52
Romania . . . . .	56	0	56	119	0	119	77	4	73
Yugoslavia . . . . .	53	1	52	97	1	96	68	4	64
Poland . . . . .	49	1	48	80	2	78	76	4	72
Lithuania . . . . .	9	0	9	8	0	8	10	1	9
<i>Totals . . .</i>	<i>279</i>	<i>12</i>	<i>267</i>	<i>455</i>	<i>36</i>	<i>419</i>	<i>336</i>	<i>26</i>	<i>310</i>
		<i>Imports</i>			<i>Imports</i>			<i>Imports</i>	
<i>GENERAL TOTAL . . .</i>	<i>1.492</i>	<i>434</i>	<i>1.926</i>	<i>1 746</i>	<i>357</i>	<i>2.103</i>	<i>1.537</i>	<i>332</i>	<i>1.869</i>

(1) Exports.

V. — EXTRA-EUROPEAN IMPORTS.

The imports of extra-European countries are calculated in a somewhat approximate fashion by taking the difference between aggregate exports and imports of European countries and also the quantities afloat at the beginning and end of each season. It should be observed that the calculations do not make any allowance for loss in weight during transit or from handling at shipment and at discharge, for the consequences of sea accidents or for quantities consumed by crews and passengers. Thus the actual shipments to non-European countries are certainly below the quantities indicated by the following calculations. It may, however, be assumed that the quantities which fail to reach their destination do not vary much from year to year, so that the procedure adopted may be adjudged generally as sufficiently exact.

The data forming the basis of this calculation are given below in million bushels:

	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	193 /35
World exports (including U. S. S. R.)	923	628	824	800	631	548	511
+ Quantity afloat at the beginning of the season . . . . .	45	80	39	38	30	32	35
— Quantity afloat at the end of the season . . . . .	80	39	38	30	32	35	17
= World imports . . . . .	888	669	825	808	629	545	529
— Quantity imported into European countries . . . . .	657	515	618	613	446	393	358
= Quantity imported by extra-European countries . . . . .	231	154	207	195	183	152	171

It should be noted that the quantity afloat on 1 August 1929 was really 37 million bushels and not 80 million. It has been considered opportune to make this modification in the above estimate since at the beginning of August 1929 large quantities of wheat exported to Europe and having reached their destinations had not yet been recorded in the import statistics.

## CEREALS

*Austria:* Weather was very changeable in September. Heavy rains were experienced only in the first week of the month. These were followed by the first night frosts. The first snow was recorded in the last decade of the month on mountains above 3,600 feet.

The bringing in of spring cereals was completed in all districts, including mountainous areas, by the beginning of October. Harvesting was hindered in some parts of Salzburg and Tyrol by the changeable weather.

Sowing of winter cereals was considerably delayed by the drought. At the beginning of October, only the sowings of winter barley had been completed; those of winter rye had been done in the higher districts. Germination was satisfactory on the whole. In hilly districts and valleys sowings are late owing to the hardness of the soil. In the latter areas germination is slow and unsatisfactory.

*Belgium:* The beginning of the month was dry but heavy rains fell later and the growth after being delayed, was encouraged. Temperatures fell and the first hoar-frosts were recorded.

It was possible to put the first sowings in the ground in generally good conditions, in spite of intermittent rains.

*Bulgaria:* Temperature during September were below the normal and rains were scanty and inadequate.

As a result of the drought work on the land and sowing have been impeded everywhere.

According to the most recent estimate, area cultivated to spelt this year is about 26,200 acres against 25,900 in 1934 and 27,100 on the average of the five years ending 1933; percentages, 101.0 and 96.5. The corresponding production is estimated at about 243,300 centals against 140,600 and 250,600; percentages, 173.1 and 97.1.

Wheat.

COUNTRIES	†) AREA					†) PRODUCTION								
	1935	1934	Average	% 1935		1935	1934	Average	1935	1934	Average	% 1935		
	—	—	1929	1935/36		—	—	1929	—	—	1929	1935/36		
	1935/36	1934/35	to 1933	1934	Aver.	1935/36	1934/35	to 1933	1935/36	1934/35	to 1933	1934	Aver.	
	1,000 acres					1,000 centals					1,000 bushels			
		1929/30 to 1933/34	1934/ 1935	= 100	= 100			1929/30 to 1933/34			1929/30 to 1933/34	1934/ 1935	= 100	
Germany . . . . .	5,199	5,431	5,015	95.7	103.7	103,022	99,926	96,910	171,700	166,539	161,514	103.1	106.3	
Austria . . . . .	609	568	524	107.2	116.4	9,354	7,985	7,366	15,590	13,308	12,277	117.1	127.0	
Belgium . . . . .	386	371	381	104.1	101.3	8,269	9,681	8,487	13,782	16,134	14,144	85.4	97.4	
Bulgaria . . . . .	2,729	3,114	2,988	87.6	91.3	28,755	23,757	30,951	47,925	39,594	51,584	121.0	92.9	
Denmark . . . . .	311	280	255	111.0	122.2	...	7,708	6,550	...	12,847	10,916	...	...	
Spain . . . . .	11,063	11,039	11,084	100.2	99.8	89,722	104,162	90,939	149,533	173,600	151,562	86.1	98.7	
Romania . . . . .	154	161	111	96.0	138.9	1,529	1,864	1,100	2,548	3,107	1,834	82.0	139.0	
Irish Free State . . . . .	...	94	30	...	...	...	2,282	705	...	3,803	1,174	...	...	
Finland . . . . .	136	125	53	108.9	257.1	...	1,951	1,968	803	3,252	3,280	1,339	99.1	242.9
France . . . . .	13,206	13,354	13,278	98.9	99.5	167,261	203,110	183,042	278,763	338,511	305,064	82.3	91.4	
Engl. and Wales . . . . .	1,771	1,759	1,364	100.7	129.8	34,944	39,155	26,795	58,240	65,259	44,658	89.2	130.4	
Scotland . . . . .	101	98	57	103.5	177.1	2,434	2,486	1,416	4,056	4,144	2,359	97.9	171.9	
Northern Ireland . . . . .	9	9	4	104.5	220.1	...	218	92	...	363	153	...	...	
Greece . . . . .	2,020	1,957	1,479	103.2	136.6	18,519	15,407	9,339	30,864	25,679	15,565	120.2	198.3	
Hungary . . . . .	4,005	3,799	3,925	105.4	102.0	44,395	38,895	47,124	73,990	64,824	78,538	114.1	94.2	
Italy . . . . .	12,422	12,274	12,074	101.2	102.9	170,076	139,840	154,812	283,454	233,063	258,014	121.6	109.9	
Latvia . . . . .	347	351	221	98.9	157.4	4,144	4,831	2,616	6,906	8,051	4,361	85.8	158.4	
Lithuania . . . . .	521	514	500	101.4	104.2	5,756	6,285	5,318	9,593	10,475	8,863	91.6	108.2	
Luxemburg . . . . .	43	40	27	106.9	159.7	605	703	341	1,009	1,171	568	86.1	177.8	
Malta . . . . .	9	9	9	99.9	99.6	107	186	177	179	310	296	57.7	60.6	
Norway . . . . .	59	46	29	126.7	203.2	1,024	722	428	1,707	1,204	713	141.8	239.3	
Netherlands . . . . .	377	366	216	102.9	174.2	9,553	10,825	5,573	15,921	18,042	9,287	88.2	171.4	
Poland . . . . .	4,401	4,315	4,108	102.0	107.1	44,062	45,865	43,292	73,435	76,440	72,151	96.1	101.8	
Portugal . . . . .	...	1,344	1,267	...	...	9,540	14,814	9,206	15,900	24,690	15,342	64.4	103.6	
Romania . . . . .	8,518	7,610	7,535	111.9	113.1	58,423	45,933	64,853	97,369	76,553	108,086	127.2	90.1	
Sweden . . . . .	673	718	690	93.8	97.6	13,911	17,026	13,227	23,185	28,376	22,045	81.7	105.2	
Switzerland 1) . . . . .	211	211	180	100.0	117.3	4,562	4,007	3,380	7,604	6,677	5,633	113.9	135.0	
Czechoslovakia 2) . . . . .	2,382	2,329	2,086	102.3	114.2	35,640	30,009	32,586	59,399	50,013	54,308	118.8	109.4	
Yugoslavia . . . . .	...	5,194	5,316	...	...	43,859	40,998	50,898	73,097	68,328	84,828	107.9	86.2	
Total Europe . . . . .	§) 77,880	77,097	74,517	101.0	104.5	911,417	910,440	890,979	1,519,001	1,517,372	1,484,933	100.1	102.3	
U.S.S.R. (w) . . . . .	31,836	26,660	24,987	119.4	127.4	...	670,428	503,890	...	1,117,358	839,800	...	...	
Canada . . . . .	24,116	23,985	25,936	100.5	93.0	174,325	165,509	212,576	290,541	275,849	354,294	105.3	82.0	
United States (w) . . . . .	§) 31,389 4)	32,968 4)	37,780	95.2	83.1	259,200	243,331	343,717	432,000	405,552	572,861	106.5	75.4	
Mexico . . . . .	20,837 4)	9,281 4)	19,841	224.5	105.0	100,200	54,826	126,547	167,000	91,377	210,912	182.8	79.9	
Total North Amer. . . . .	1,196	1,224	1,258	97.7	95.1	6,367	6,570	7,294	10,611	10,950	12,157	96.9	87.3	
China . . . . .	77,538	67,458	84,815	114.9	91.4	540,092	470,236	690,134	900,152	783,728	1,150,224	114.9	78.3	
Chosen . . . . .	...	789	824	...	...	5,375	5,561	5,361	8,957	9,268	8,935	96.6	100.3	
India . . . . .	34,485	35,992	32,516	95.8	106.1	217,818	210,874	210,112	363,029	351,456	350,187	103.3	103.7	
Japan . . . . .	1,626	1,589	1,280	102.3	127.0	29,453	28,597	20,187	49,087	47,660	33,645	103.0	145.9	
Manchukuo . . . . .	...	2,042	3,441	...	...	20,635	14,078	30,153	34,392	23,463	50,253	146.6	68.4	
Syria and Leb. . . . .	1,288	1,175	1,170	109.7	110.1	...	8,724	8,851	...	14,540	14,751	...	...	
Turkey . . . . .	5,482	7,625	7,231	71.9	75.8	54,058	59,828	55,900	90,094	99,711	93,165	90.4	96.7	
Total Asia . . . . .	§) 44,424	48,037	45,292	92.5	98.1	327,339	318,938	221,713	545,559	531,558	536,185	102.6	101.7	
Algeria . . . . .	4,005	4,068	3,839	98.4	104.3	18,695	26,117	18,316	31,158	43,528	30,526	71.6	102.1	
Cyrenaica . . . . .	52	22	20	233.3	257.4	...	107	51	...	179	84	...	...	
Egypt . . . . .	1,463	1,442	1,595	101.5	91.8	25,933	22,366	26,831	43,221	37,276	44,718	115.9	96.7	
Libya . . . . .	11	15	14	75.0	78.9	66	77	32	110	129	54	85.7	203.8	
Kenya . . . . .	45	44	48	104.3	94.4	...	360	313	...	601	522	...	...	
French Morocco . . . . .	3,210	3,018	2,885	106.4	111.3	10,673	23,351	16,767	17,787	38,918	27,944	45.7	63.7	
Tripolitania . . . . .	30	25	22	120.0	133.3	106	139	79	176	231	132	76.2	133.3	
Tunisia . . . . .	1,829	1,903	1,952	96.1	93.7	10,362	8,267	7,597	17,269	13,779	12,662	125.3	136.4	
Total North Africa . . . . .	10,548	10,471	10,307	100.8	102.3	65,835	80,317	69,622	109,721	133,861	116,036	82.0	94.6	
Argentina . . . . .	f) 14,085 5)	18,812 5)	19,701	74.9	71.5	...	142,992	136,990	...	238,316	228,312	...	...	
Chile . . . . .	...	17,155 4)	17,459	...	...	...	18,078	16,795	...	30,129	27,991	...	...	
Uruguay . . . . .	2,049	2,120	1,684	96.7	121.7	...	6,769	6,224	...	11,281	10,373	...	...	
Un. of South Afr . . . . .	1,227	1,099	1,054	111.7	116.4	...	...	...	...	...	...	...	...	
Australia . . . . .	...	1,423	1,375	...	...	...	9,206	6,702	...	15,343	11,170	...	...	
New Zealand 6) . . . . .	11,970	12,567	15,710	95.2	76.2	81,000	80,093	110,683	135,000	133,489	184,471	101.1	73.2	
GRAND TOTALS . . . . .	222,360	215,630	230,641	103.1	96.4	1,925,683	1,860,024	2,083,131	3,209,433	3,100,008	3,471,849	103.5	92.4	



*Rye.*

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Average	% 1935		1935	1934	Average	1935	1934	Average	% 1935	
	1935/36	1934/35	1929 to 1933	1934	Aver.	1935/36	1934/35	1929 to 1933	1935/36	1934/35	1929 to 1933	1934	Aver.
			1929/30 to 1933/34	1934/1935	= 100			1929/30 to 1933/34			1929/30 to 1933/34	1934/1935	= 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . . . .	11,198	11,097	11,257	100.9	99.5	166,522	167,720	174,628	297,362	299,501	311,837	99.3	95.4
Austria . . . .	930	949	940	98.0	99.0	12,952	12,666	12,425	23,128	22,617	22,187	102.3	104.2
Belgium . . . .	525	528	561	99.5	93.6	10,783	12,444	12,012	19,255	22,222	21,449	86.7	89.8
Bulgaria . . . .	433	494	570	87.7	75.9	4,350	3,605	5,524	7,767	6,438	9,865	120.6	76.7
*Denmark . . . .	391	377	346	103.7	112.9	...	6,048	5,317	...	10,801	9,495	...	...
Spain . . . . .	1,401	1,451	1,512	96.6	92.7	13,549	12,419	12,565	24,194	22,176	22,438	109.1	107.8
Estonia . . . .	357	364	358	98.2	99.9	3,680	5,076	4,064	6,571	9,064	7,258	72.5	90.5
*Irish Free State .	...	2	3	...	...	...	37	60	...	67	107	...	...
Finland . . . .	613	609	532	100.6	115.2	7,540	8,705	7,139	13,464	15,545	12,748	86.6	105.6
France . . . . .	1,663	1,694 1)	1,776	98.2	93.6	16,229	18,471	18,322	28,981	32,984	32,718	87.9	88.6
Greece . . . . .	185	182	162	101.6	114.1	1,698	1,381	1,105	3,031	2,466	1,974	122.9	153.6
Hungary . . . .	1,548	1,586	1,590	97.6	97.4	14,902	13,653	16,739	26,611	24,381	29,891	109.1	89.0
Italy . . . . .	272	278	297	97.8	91.6	3,509	3,140	3,652	6,267	5,607	6,522	111.8	96.1
Latvia . . . . .	658	654 7)	608	100.6	108.2	7,941	8,991	6,127	14,180	16,056	10,941	88.3	129.6
Lithuania . . . .	1,236	1,225	1,194	100.9	103.5	13,562	14,745	12,186	24,219	26,331	21,761	92.0	111.3
Luxemburg . . . .	19	19	19	96.2	97.5	250	307	258	447	548	461	81.7	97.1
Norway . . . . .	15	15	17	105.9	90.7	258	221	272	460	395	486	116.6	94.7
Netherlands . . .	502	463	445	108.5	112.8	8,188	11,081	8,604	14,621	19,788	15,365	73.9	95.2
Poland . . . . .	14,160	13,934	14,276	101.6	99.2	140,697	142,506	144,863	251,246	254,476	258,684	98.7	97.1
*Portugal . . . .	...	348	401	...	...	...	2,751	2,573	...	4,913	4,595	...	...
Romania . . . . .	951	912	913	104.4	104.2	8,708	4,653	8,241	15,551	8,308	14,717	187.2	105.7
Sweden . . . . .	557	581	561	95.8	99.3	9,700	11,577	8,927	17,322	20,674	15,940	83.8	108.7
Switzerland . . .	35	35	47	100.0	75.0	686	695	835	1,224	1,242	1,491	98.6	82.1
Czechoslovakia .	2,511	2,473	2,592	101.5	96.9	34,933	33,583	40,875	62,381	59,969	72,991	104.0	85.5
Yugoslavia . . . .	...	631	622	...	...	4,317	4,305	4,670	7,708	7,688	8,339	100.3	92.4
Total Europe . .	§) 40,400	40,174	40,849	100.6	98.9	484,954	491,944	504,033	865,990	878,476	900,063	98.6	96.2
*U. S. S. R. . . .	u) 58,519 w)	58,474 w)	64,626	100.1	90.5	...	443,792	494,543	...	792,488	883,114	...	...
Canada . . . . .	769	735	919	104.6	83.7	7,478	3,037	5,953	13,354	5,423	10,630	246.2	125.6
United States . .	3) 3,699 4)	1,942 4)	3,104	190.5	119.2	29,232	8,985	19,694	52,200	16,045	35,167	325.3	148.4
Total North Amer.	4,468	2,677	4,023	166.9	111.1	36,710	12,022	25,647	65,554	21,468	45,797	305.4	143.1
Turkey . . . . .	591	602	635	98.1	93.0	6,191	5,370	6,614	11,055	9,590	11,811	115.3	93.6
Algeria . . . . .	3	3	4	82.0	76.2	14	25	23	25	45	41	55.0	60.7
*Argentina . . . .	5) 1,606 5)	2,134 5)	1,477	75.3	108.8	...	8,841	4,270	...	15,787	7,624	...	...
	1) ... 4)	1,324 4)	819	...	...								
GRAND TOTALS .	§) 45,462	43,456	45,511	104.6	99.9	527,869	509,361	536,317	942,624	909,579	957,712	103.6	98.4

See notes on page 767.

\*\*\* *St. 10 Incl.*

## Barley.

COUNTRIES	1) AREA					1) PRODUCTION																			
	1935 — 1935/36	1934 — 1934/35	Average 1929 to 1933 — 1929/30 to 1933/34	% 1935 1935/36		1935 — 1935/36	1934 — 1934/35	Average 1929 to 1933 — 1929/30 to 1933/34	1935 — 1935/36	1934 — 1934/35	Average 1929 to 1933 — 1929/30 to 1933/34	% 1935 1935/36													
				1934 — 1934/35	Aver. — 1935 — 1935/36							1934 — 1934/35	Aver. — 1935 — 1935/36												
														1,000 acres				1,000 centals				1,000 bushels			
Germany . . . .	3,966	4,030	3,876	98.4	102.3	73,970	70,634	69,410	154,107	147,156	144,607	104.7	106.6												
Austria . . . .	402	416	416	96.6	96.5	5,992	6,499	5,998	12,484	13,540	12,497	92.2	99.9												
Belgium . . . .	99	93	83	107.3	119.9	2,346	2,325	1,919	4,887	4,843	3,998	100.9	122.2												
Bulgaria . . . .	501	566	602	88.5	83.1	6,211	4,133	7,184	12,941	8,610	14,966	150.3	86.5												
Denmark . . . .	851	841	890	101.2	95.5	...	21,072	22,436	...	43,900	46,743	...	...												
Spain . . . . .	4,536	4,502	4,629	100.8	98.0	41,024	61,996	50,358	85,469	129,161	104,914	66.2	81.5												
Estonia . . . .	259	257	272	100.5	95.1	2,319	2,533	2,480	4,831	5,277	5,167	91.5	93.5												
Irish Free State .	...	143	114	...	...	...	3,254	2,588	...	6,779	5,391	...	...												
Finland . . . .	328	325	298	101.1	110.3	3,924	4,600	3,653	8,176	9,583	7,611	85.3	107.4												
France . . . . .	1,795	1,810	1,834	99.2	97.9	23,658	22,797	24,221	49,288	47,496	50,461	103.8	97.7												
Engl. and Wales .	793	861	976	92.1	81.2	13,933	16,285	17,499	29,027	33,927	36,456	79.6	79.6												
Scotland . . . .	77	96	85	80.0	90.9	1,472	2,016	1,761	3,067	4,200	3,668	73.0	83.6												
Northern Ireland .	3	2	2	127.6	192.5	...	57	35	...	118	74	...	...												
Greece . . . . .	544	526	508	103.3	107.1	5,049	4,316	3,759	10,518	8,992	7,831	117.0	134.3												
Hungary . . . .	1,181	1,181	1,167	100.1	101.3	12,743	11,992	14,640	26,548	24,983	30,501	106.3	87.0												
Italy . . . . .	481	491	546	98.0	88.0	4,410	4,472	5,386	9,187	9,318	11,221	98.6	81.9												
Latvia . . . . .	477	445	451	107.2	105.8	5,056	4,801	4,297	10,534	10,001	8,953	105.3	117.7												
Lithuania . . . .	507	503	495	100.7	102.4	5,317	5,598	5,210	11,076	11,663	10,855	95.0	102.0												
Luxemburg . . . .	6	6	10	99.4	66.1	86	89	129	179	185	268	96.7	66.9												
Malta 8) . . . .	5	5	6	94.6	75.4	65	114	133	136	238	277	57.2	49.3												
Norway . . . . .	153	147	137	104.3	112.1	2,818	2,547	2,274	5,870	5,307	4,738	110.6	123.9												
Netherlands . . .	98	80	64	123.1	154.1	2,555	2,182	1,643	5,323	4,546	3,422	117.1	155.6												
Poland . . . . .	2,984	2,909	3,033	102.6	98.4	31,495	32,025	32,788	65,616	66,719	68,309	98.3	96.1												
Portugal . . . .	...	124	183	...	...	...	972	949	...	2,024	1,977	...	...												
Romania . . . . .	3,998	4,332	4,720	92.3	84.7	24,251	19,210	43,553	50,524	40,021	90,737	126.2	55.7												
Sweden . . . . .	258	247	303	104.5	85.0	4,632	4,756	5,068	9,650	9,908	10,559	97.4	91.4												
Switzerland . . .	14	14	18	100.0	78.9	223	224	280	465	467	583	99.6	79.7												
Czechoslovakia . .	1,597	1,644	1,739	98.6	91.8	21,816	22,804	28,243	45,451	47,510	58,841	95.7	77.2												
Yugoslavia . . . .	...	1,073	1,096	...	...	8,338	9,038	9,095	17,371	18,829	18,948	92.3	91.7												
Total Europe . .	§) 26,132	26,559	27,364	98.4	95.5	303,703	317,986	340,981	632,725	662,480	710,388	95.5	89.1												
Canada . . . . .	3,886	3,612	4,538	107.6	85.6	45,384	30,596	43,103	94,550	63,742	89,798	148.3	105.3												
United States . .	3) 12,957 4)	7,095 4)	12,194	182.6	106.3	139,200	56,807	119,079	290,000	118,348	248,081	245.0	116.9												
Total North Amer.	16,843	10,707	16,732	157.3	100.7	184,584	87,403	162,182	384,550	182,090	337,879	211.2	113.8												
Chosen . . . . .	...	2,179	2,403	...	...	25,398	23,097	20,455	52,913	48,120	42,616	110.0	124.2												
Japan . . . . .	1,919	1,860	2,088	103.2	91.9	37,138	34,324	36,771	77,371	71,509	76,607	108.2	101.0												
Syria and Leb. . .	715	611	810	117.0	88.3	...	5,351	8,032	...	11,148	16,734	...	...												
Turkey . . . . .	...	3,977	3,435	...	...	28,468	36,856	33,552	59,310	76,785	69,901	77.2	84.8												
Total Asia . . .	§) 8,075	8,016	7,926	100.7	101.9	91,004	94,277	90,778	189,594	196,414	189,124	96.5	100.2												
Algeria . . . . .	3,047	3,131	3,431	97.3	88.8	15,432	21,482	16,569	32,151	44,755	34,519	71.8	93.1												
Cyrenaica . . . .	151	110	84	137.4	178.8	...	292	264	...	608	551	...	...												
Egypt . . . . .	281	284	342	98.7	82.1	5,021	4,336	5,200	10,461	9,033	10,834	115.8	96.6												
Eritrea . . . . .	62	47	53	132.6	115.7	276	251	280	574	524	583	109.6	98.4												
French Morocco .	3,988	3,844	3,344	103.8	119.3	12,782	33,516	23,174	26,631	69,826	48,279	38.1	55.2												
Tripolitania . . .	272	247	282	110.0	96.5	1,213	661	650	2,526	1,378	1,355	183.3	186.4												
Tunisia . . . . .	1,532	988	1,221	155.0	125.4	8,819	3,307	4,630	18,372	6,890	9,645	266.7	190.5												
Total Africa . .	9,182	8,541	8,673	107.5	105.9	43,543	63,553	50,503	90,715	132,406	105,215	68.5	86.2												
Argentina . . . .	(5) 1,927 5)	2,014 5)	1,530	95.7	126.0	...	19,533	11,116	...	40,695	23,159	...	...												
Chile . . . . .	163	147	163	110.7	99.9	...	1,826	2,461	...	3,803	5,127	...	...												
Uruguay . . . . .	32	23	12	136.9	263.0	...	125	80	...	260	166	...	...												
New Zealand 6) .	27	29	26	94.0	104.0	...	242	342	...	505	713	...	...												
GRAND TOTALS .	§) 60,232	53,823	60,695	111.9	99.2	622,834	563,219	644,444	1,297,584	1,173,390	1,342,606	110.6	96.6												

## Oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Average	%	1935	1935	1934	Average	1935	1934	Average	%	1935
	1935/36	1934/35	1929/30	1935/36	1935/36	1935/36	1934/35	1929/30	1935/36	1934/35	1929/30	1934	1935
			to 1933/34	1934/35	1934/35	1934/35	1934/35	to 1933/34			to 1933/34	1934/35	1934/35
	1,000 acres					1,000 bushels							
					Aver.								Aver.
Germany . . . .	6,902	7,773	8,317	88.8	83.0	118,390	120,204	144,830	369,967	375,634	452,591	98.5	81.7
Austria . . . .	742	743	759	99.9	97.7	9,196	10,285	9,155	28,736	32,139	28,610	89.4	100.4
Belgium . . . .	710	726	720	97.8	98.7	14,575	17,781	15,853	45,546	55,566	49,539	82.0	91.9
Bulgaria . . . .	268	317	328	84.5	81.8	2,041	1,642	2,559	6,379	5,133	7,997	124.3	79.8
*Denmark . . . .	909	943	960	96.3	94.6	...	21,766	22,132	...	68,019	69,163	...	...
Spain . . . . .	1,619	1,877	1,917	86.3	84.5	10,991	16,630	15,083	34,348	51,969	47,133	66.1	72.9
Estonia . . . .	342	341	361	100.4	94.8	3,187	3,518	3,163	9,960	10,994	9,885	90.6	100.8
*Irish Free State .	...	583	640	...	...	...	12,564	13,860	...	39,262	43,312	...	...
Finland . . . .	1,171	1,173	1,106	99.9	105.9	13,636	17,115	13,720	42,611	53,485	42,875	79.7	99.4
France . . . . .	8,202	8,210	8,444	99.9	97.1	101,596	96,660	108,686	317,484	302,060	339,642	105.1	93.5
Engl. and Wales .	1,416	1,402	1,672	101.0	84.7	24,349	24,998	29,474	76,090	78,120	92,106	97.4	82.6
Scotland . . . .	826	816	862	101.2	95.9	13,800	14,448	15,519	43,124	45,150	48,496	95.5	88.9
*Northern Ireland .	273	280	296	97.5	92.1	...	6,143	6,011	...	19,198	18,783	...	...
Greece . . . . .	358	336	322	106.7	111.2	2,822	2,172	2,012	8,818	6,787	6,289	129.9	140.2
Hungary . . . .	553	552	619	100.1	89.3	4,929	5,718	6,787	15,402	17,869	21,210	86.2	72.6
Italy . . . . .	1,047	1,049	1,182	99.9	88.6	11,358	10,803	13,164	35,495	33,758	41,137	105.1	86.3
Latvia . . . . .	822	742	779	110.8	105.5	9,237	8,567	7,399	28,866	26,770	23,123	107.8	124.8
Lithuania . . . .	824	812	891	101.5	92.5	8,769	8,372	8,612	27,404	26,163	26,911	104.7	101.8
Luxembourg . . . .	67	67	72	100.0	92.7	1,010	1,002	1,012	3,156	3,133	3,164	100.7	99.8
Norway . . . . .	215	226	238	95.3	90.4	3,824	3,887	3,904	11,949	12,146	12,201	98.4	97.9
Netherlands . . .	320	323	364	99.1	87.7	5,785	6,337	6,728	18,078	19,803	21,024	91.3	86.0
Poland . . . . .	5) 5,488	5) 5,466	5,424	100.4	—	56,553	56,234	55,927	176,727	175,730	174,770	100.6	101.1
*Portugal . . . .	...	402	431	...	...	...	2,461	1,898	...	7,691	5,932	...	...
Romania . . . .	1,947	2,044	2,369	95.3	82.2	14,881	12,418	20,438	46,504	38,806	63,867	119.8	72.8
Sweden . . . . .	1,657	1,628	1,618	101.8	102.5	26,676	27,147	25,007	83,362	84,835	78,146	98.3	106.7
Switzerland . . .	25	25	45	100.0	55.0	460	449	806	1,439	1,404	2,517	102.4	57.1
Czechoslovakia . .	1,921	1,976	2,050	97.5	93.7	22,558	25,992	32,044	70,493	81,224	100,136	86.8	70.4
Yugoslavia . . . .	...	945	955	...	...	5,022	7,351	6,794	15,694	22,972	21,231	68.3	73.9
<b>Total Europe . .</b>	<b>§) 38,387</b>	<b>39,569</b>	<b>41,414</b>	<b>97.0</b>	<b>92.7</b>	<b>485,645</b>	<b>499,730</b>	<b>548,676</b>	<b>1,517,632</b>	<b>1,561,650</b>	<b>1,714,600</b>	<b>97.2</b>	<b>88.5</b>
Canada . . . . .	14,099	13,731	13,051	102.7	108.0	152,761	109,181	117,865	477,378	341,190	368,327	139.9	129.6
United States . .	3) 39,530	4) 30,172	39,201	131.0	100.8	378,880	168,284	352,048	1,184,000	525,889	1,100,151	225.1	107.6
<b>Total North Amer.</b>	<b>53,629</b>	<b>43,903</b>	<b>52,252</b>	<b>122.2</b>	<b>102.6</b>	<b>531,641</b>	<b>277,465</b>	<b>469,913</b>	<b>1,661,378</b>	<b>867,079</b>	<b>1,468,478</b>	<b>191.6</b>	<b>113.1</b>
*Syria and Lebanon	30	32	29	93.7	104.7	...	318	246	...	994	768	...	...
Turkey . . . . .	...	449	390	...	...	5,664	3,501	3,275	17,699	10,939	10,234	161.8	172.9
Algeria . . . . .	440	450	554	97.8	79.4	2,756	3,804	3,710	8,612	11,889	11,594	72.4	74.3
French Morocco .	72	66	83	109.2	86.6	439	606	677	1,371	1,894	2,115	72.4	64.8
*Tunisia . . . . .	74	49	86	150.0	85.9	...	441	666	...	1,378	2,081	...	...
<b>Total Africa . .</b>	<b>512</b>	<b>516</b>	<b>637</b>	<b>99.0</b>	<b>80.5</b>	<b>3,195</b>	<b>4,410</b>	<b>4,387</b>	<b>9,983</b>	<b>13,783</b>	<b>13,709</b>	<b>72.4</b>	<b>72.8</b>
*Argentina . . . .	(5) 2,866	5) 3,529	3,672	81.2	78.1	...	21,385	21,071	...	66,827	65,846	...	...
*Chile . . . . .	...	4) 2,200	2,022	...	...	...	1,511	2,221	...	4,723	6,941	...	...
*Uruguay . . . .	229	189	243	121.1	94.1	...	1,177	791	...	3,680	2,470	...	...
*New Zealand 6) .	344	336	361	102.3	95.3	...	756	1,406	...	2,363	4,393	...	...
<b>GRAND TOTALS . .</b>	<b>§) 92,977</b>	<b>84,437</b>	<b>94,693</b>	<b>110.1</b>	<b>98.2</b>	<b>1,026,145</b>	<b>785,106</b>	<b>1,026,251</b>	<b>3,206,692</b>	<b>2,453,451</b>	<b>3,207,021</b>	<b>130.7</b>	<b>100.0</b>

†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. —  
 \* Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some  
 countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop — 1) Including  
 spelt and meslin. — 2) Including spelt. — 3) Area expected to be harvested. — 4) Area harvested. — 5) Area sown — 6) The area  
 figures include also those for feeding and ensilage. — 7) Average 1930 to 1933. — 8) Barley and meslin.

The area cultivated to meslin this year is about 182,800 acres against 218,000 in 1934 and 242,100 on the average of the five years ending 1933; percentages, 83.8 and 75.5. The corresponding production is estimated at about 1,704,000 centals (2,938,000 bushels) against 2,038,000 (3,515,000) and 2,569,000 (4,420,000); percentages, 83.6 and 66.3.

*Denmark:* According to the most recent estimate, the area cultivated to meslin this year is 823,400 acres against 836,500 in 1934 and 780,700 on the average of the five years ending 1933; percentages, 98.4 and 105.5.

*Estonia:* Rain interfered with harvesting and threshing and affected the quality of the grain.

The sowing of winter cereals was also hindered by the frequent rains and a part of this work still remains to be done. Some early cereals have been destroyed by Swedish fly (*Omnis frit*) and, to avoid possible loss, many farmers have delayed their sowings.

*Irish Free State:* The weather during September was for the most part broken, wet and stormy, and was, on the whole, the most unfavourable experienced in any September for many years. Fortunately, harvesting operations had been brought to a more advanced state than usual by the end of August, and although there was a good deal still to be done in September, the carrying out of which was retarded by the rain, yet the work was eventually completed in a reasonably satisfactory manner.

All cereal crops were well saved. A large proportion of the wheat crop was threshed during the month but the work was retarded by the unfavourable weather. Threshings so far indicate that the final yield will probably be about average. The quality of the grain was generally excellent. The threshings of the oat crop point to a higher general yield than last year, and the grain is generally of good quality. The barley crop appears to have done unusually well; the yield was heavy and the quality of the grain generally good, although some reports of unfavourable colour were received.

*Finland:* There were complaints of excessive rain in September.

*France:* The weather during the second half of September was generally rather favourable for both outdoor work and sowings. The latter sprouted perfectly and conditions were excellent for growth. Weather continued generally favourable in the first half of October and conditions in all parts were favourable for sprouting and growth. There were practically no hoarfrosts except in the east and in the higher districts and these were fairly slight.

*Great Britain and Northern Ireland:* Generally the weather during September was very unsettled with few fair periods. In the middle of the month stormy conditions with strong gales prevailed and both in the beginning and end of the month heavy rain was experienced all over the country. A few slight ground frosts at night occurred. The cereal harvest, except in the Northern and North Western Divisions of England and in Wales, where by the middle of September all but a small acreage had been gathered, was practically completed at the end of August under favourable conditions. In Scotland, the continual downpour greatly hindered harvesting operations, causing the crops to remain in the stook longer than usual in several districts and crops which were generally rather promising were seriously damaged by wind and

rain. Threshings in England and Wales have frequently been delayed this season and later information may lead to some modification of the present forecast of yield.

The cereal crops are comparatively free from disease, and bunt and smut appear to be less prevalent than usual. The quality of wheat and its condition are generally stated to be good. While the condition of barley is reported to be good, it is in many cases dry and "steely". Oats are generally of fair quality and were harvested in good condition but spring sown oats are in some districts reported to be light.

The wet weather experienced during the last half of September interfered with autumn cultivation and particularly seeding operations but the work is well forward. Ploughing was commenced sooner than usual in some districts owing to the early completion of harvest operations. Good progress has been made with the clearing of stubbles.

*Hungary:* During the the three weeks between 10 September and 1 October weather was characterised by mild temperatures and little rainfall.

The quality of this year's cereal crops was stated to be as follows after threshing: wheat, good; rye, good; barley, poor to average; oats, poor.

Sowings of winter cereals were practically finished at the beginning of October. The early seedings germinated well and regularly.

*Italy:* Preparatory work for winter cereal sowings was hindered by the hardness of the soil during the first half of September but during the second half of the month it was assisted by the weather. Sowing has begun in some of the mountainous areas.

*Latvia:* September was very wet and rainfall was in many cases two or three times heavier than the normal. Temperatures were slightly above normal and weather was almost continuously cloudy and foggy. These conditions considerably hindered field work.

*Lithuania:* Weather during September was cold and frequently wet. Conditions were unfavourable both for field work and the growth of crops. Owing to the rain, it was not possible to finish the bringing in of spring cereals until the end of the month.

Sowing of winter cereals began during the first half of September but work was continually interfered with by rain. In many areas less than half the work of winter sowings was accomplished.

*Norway:* According to the most recent estimate, production of meslin this year is 213,200 centals (367,530 short tons) against 200,000 (360,400) in 1934 and 236,100 (407,040) on the average of the five years ending 1933. percentages, 102.0 and 90.3.

*Netherlands:* The condition of the cereal crops which were still standing in September still showed the effects of the preceding drought which to some extent and only in a few areas was offset by the rains of September.

*Poland:* Harvesting was carried out at the normal time according to 56 % of the reporters, later than normal according to 34 % and before normal according to 10 %. The bulk of the information indicates that early crops have been secured in Poznań and Łódź, while harvest was retarded in Białystok and Wilno, where 70 % of

the correspondents reported unfavourable conditions during harvesting. In general 80 % of the replies indicate that harvesting had been carried out in favourable conditions.

Quality of the grain this year averages for Poland as a whole as follows, the figures representing percentages of the crop reporters' replies:

	Good		Average		Below average	
	1935	1934	1935	1934	1935	1934
Winter wheat . . . . .	25	30	67	63	8	7
Winter rye . . . . .	37	35	58	58	5	7
Winter barley . . . . .	23	34	65	60	12	6
Oats . . . . .	31	37	57	56	12	7

*Romania:* In the latter half of September drought prevailed. Isolated showers fell on 25 and 28 September over the greater part of the Old Kingdom and in Basarabia. The amount of moisture was not very great but it benefited early sowings and cultivation in those areas.

In general, however, cultivation was carried out only with difficulty because of the drought. Sowing was also hindered. Toward 10 October it was officially stated that so far growers had sown relatively very little and the situation was such as to cause anxiety.

*Sweden:* During September, temperatures were comparatively high except in the north where they were somewhat below normal. The drought of last month was followed by plentiful rains.

The wheat crop in general was gathered in favourable conditions and the grain is of good quality. In the north, part of the spring wheat crop has been damaged by rain.

Sowing of winter cereals has been delayed by the wet weather.

*Yugoslavia:* Weather in September was variable and rather cold. Rainfall was light.

Snow appeared on the mountains in the first half of the month and at the end snow also fell in the plains.

*U. S. S. R.:* Harvesting of cereals was finished by the end of September. The area cropped up to 1 October was 205,750,000 acres, or 99 % of the Plan, compared with 198,703,000 acres, or 98 % of the Plan, at the same date last year.

By 10 October, the produce of 167,814,000 acres, or 81 % of the area harvested, had been threshed against 156,726,000 acres, 78 %, at the same date last year.

The area sown to winter cereals up to 10 October was estimated at 86,486,000 acres, that is 93 % of the Plan, compared with 83,931,000 acres, or 90 % of the Plan, sown by the same date last year.

Preparatory field work for spring sowings had been accomplished on 10 October on 54,861,000 acres, or 39 % of the Plan, compared with 42,802,000 acres, or 41 % of the Plan, on the same date a year ago.

The yearly Plan providing for the delivery of cereals to the Government had been realised in full by 10 October, that is, a month earlier than last year.

*Argentina:* The latest monthly report, published on 25 September by the Department of Rural Economy and Statistics of the Ministry of Agriculture of Buenos Aires gives the following information on the wheat crops of Argentina.

Province of Buenos Aires. — In the Atlantic zone the rains received in the second decade of September resulted in a vigorous recovery in the seedings. The soil retained a good supply of moisture and the crop was very healthy. In the Bahia Blanca area, the crop, though late, has not been affected by disease. There was a slight reduction in the area sown to wheat this year in the eastern part of the Province and germination was uneven and delayed by the drought. The crops in the west are in good condition as far as Bragado. In the neighbouring part of the Pampa sowings were two months late and germination was slow and uneven.

The decline in the area sown in the north and north-west was rather appreciable and the crop situation was rather precarious. The winds of the Pampa and the frosts caused some damage. Grasshoppers were reported in some departments of the north.

Province of Santa Fé. — The decline in the area sown and the precarious situation of the crop resulting from the scarcity of rainfall, the frequent winds and frosts indicate that the crop in the province as a whole will be poor. In the central and northern areas, the proportion of the sown area on which crops were destroyed was estimated at about 50 %. Germination was normal in the south but, owing to the low temperatures of September, growth was held up. Grasshoppers are in evidence in the north.

Province of Córdoba. — The situation of the crop in general was still precarious except in the east where rains, though light, stimulated growth. In northern, central and western parts, there was an appreciable decline in area and germination was uneven.

Province of Entre Ríos — Prospects for the coming harvest are poor. Germination was uneven and losses resulting from the drought are very considerable.

Province of Santiago del Estero. — The drought continued in September with sudden changes in temperature and high winds. Wheat in the irrigated zone was good but in the remainder of the province the condition of the crop was mediocre.

Province of San Luis. — The rain and snow of the first decade of September were favourable to the crop, particularly in the south.

National Territory of the Pampa. — The rains of the first half of August and the first decade of September did not result in an appreciable improvement in the condition of the crop. Wind and frost caused some damage, particularly in the central and northern parts of the province.

(Telegram of 23 October); Weather conditions in the second half of this month were favourable to wheat and an improvement has occurred in crop condition since the last report issued on 25 September. Crop, however, is backward and the harvest of the year 1935-36 is expected to be smaller than that of last year.

It must be remembered, with reference to this communiqué of the Argentine Government, that the intense and prolonged drought was an unfavourable factor at the time when sowings were made and that there were declines in the areas sown to wheat compared with last year (25.1 %).

*United States* (Telegram of 3 October). Light to severe frosts occurred in the preceding week as far south as Kentucky and Virginia with killing frosts in the North Central States; little damage resulted.

(Telegram of 10 October): Temperatures were above normal in the west of the Rockies but elsewhere they were generally much below it. Practically no rains were recorded. Rains were needed in many areas, particularly the north-west, to promote field work and the germination of winter grains.

(Telegram of 17 October): Temperatures during the week were above normal over most of the country, but, except in the Central Mississippi Valley, the Lake regions and the Northern Pacific Coast, there was little precipitation and rains were urgently needed

to facilitate field work and the germination of winter sowings, particularly in the Great Plains and the South-east.

(Telegram of 24 October): The week was favourable for outdoor operations and harvesting made good progress. Moisture, however, was still needed over most of the winter wheat belt, particularly in the Great Plains and the North-west Pacific Section.

*Mexico:* Wheat is considered to be of poorer quality than last year because of the excessive rain in the ripening period.

*Uruguay:* The estimates of the areas sown to cereals in the year 1935-36 indicate an increase over last year in all crops. Preparatory work, as a result of the dry and sunny weather, was carried out in excellent conditions. Subsequently, drought, frosts grasshoppers and weeds impeded sowings and germination.

*Japan:* Weather conditions at the beginning of October were not favourable for harvesting, threshing and bringing in of spring wheat. In the case of spring barley, these operations were performed in better conditions.

*Palestine:* During September, mild weather and heavy dew falls prevailed, very cool conditions culminated towards the end of the month in moderate south westerly winds. The threshing and winnowing of the last of the wheat in the north was general and is now concluded. In anticipation of an early rainy season farmers in the southern areas are busy ploughing both with animals and hired machines for *afis* sowing.

Ploughing, while not general in the north, is commencing in districts where *afis* sowing is the rule. There is ample seed grain in most parts of the country.

*Algeria:* Preparation of the soil was assisted by the stormy rains of September. Reploughing and clearing of stubble were done in good conditions. Sowing of barley and oats has begun in the departement of Alger.

*Kenya:* During the month of September good rains fell in the principal wheat areas. Cereals were in good condition.

*Tunisia:* Weather conditions in September were marked by lower than average temperatures, particularly in the second half of the month, by much humidity and, on the 13th. and 14th., by a violent storm. The rains in the north, however, were of a torrential character and, owing to the hard and dry condition of the soil they formed streams on the surface. At the end of the month rains were necessary everywhere to facilitate sowings.

*Union of South Africa:* During the month of August weather conditions were favourable practically throughout the Cape Province, but were comparatively unfavourable for the rest of the Union. Exceptionally cold weather for the time of year was experienced in many parts during the earlier portion of the month, and a great deal of frost occurred. Strong winds and frost did some damage to crops, but practically no insect pests were reported in the Union and only a few swarms of flying locusts appeared to be present. Good rains fell during the month practically throughout the North-west and South-west areas of the Cape Province and beneficial rains also fell in other parts of this province. Agricultural conditions generally were very favourable and prospects were



bright. Winter crops nearly everywhere were doing well and in most districts the prospects of good crops being obtained were very promising. Agricultural conditions in the remaining provinces of the Union during August were not nearly so favourable as in the Cape Province. In most districts of the Orange Free State winter crops were still doing well and it was expected that, provided rain was received in time, good wheat crops would be reaped. Very little rain fell in the Transvaal during the month of August and in several districts of this province, owing to the prolonged drought, conditions had become very difficult for the farmers. Although winter crops generally in the Transvaal had been affected by drought and unfavourable weather, winter crops in parts of this province were still promising and it was expected that some good crops might be reaped.

*Australia* (Telegram of 15 October): In Western Australia the wheat crop looks healthy but rains are necessary to ensure satisfactory production. Crop condition is satisfactory in South Australia, fairly satisfactory, save in some parts where rainfall has been inadequate, in New South Wales and good in Victoria.

## WORLD MAIZE PRODUCTION AND TRADE

The available statistical information concerning the maize crops makes it possible to form a fairly clear idea of the size of the crop in the northern hemisphere. Having regard to the effect of the harvest on world trade in maize and fodder in general, it will be of interest to examine also the present situation of world trade in this cereal. This is an opportune moment to make this review as it coincides with the beginning of the commercial year for Danubian maize and with the half-way point in the Argentine year.

### I. — THE MAIZE CROP IN THE NORTHERN HEMISPHERE.

The maize crop of the United States, the world's largest maize producer, amounts this year to 2,213 million bushels, compared with 1,377 million in 1934 and with an average of 2,490 million bushels during the preceding five years. It is thus 11.1 % smaller than the average but 60.7 % larger than the abnormally low crop of 1934. The weather conditions were not sufficiently good for the crop, a fact which is also evident in the yields per acre. In fact, the unit yield is estimated this year, according to the most recent estimate, at 23.6 bushels per acre against 15.7 in 1934 and an average of 24.1 bushels in the five years 1929-33. The cold and wet weather of May delayed sowings considerably and impeded the development of the crop during the first stage of growth. The changeableness of the weather conditions are revealed by the successive estimates of the crop which were made in the following order: 2,045 million bushels at the beginning of July, 2,272 millions at the beginning of August, 2,184 at the beginning of September and 2,213 million bushels at the beginning of October.

The four Danubian countries, Romania, Yugoslavia, Hungary and Bulgaria, return a total crop of 378 million bushels against 507 millions in 1934 and an average of 473 million bushels.

This is a poor crop, being 25.4 % smaller than that of last year and 20.0 % below the average. The most considerable decline, calculated, however, on the first estimate, which may be modified, occurred in Yugoslavia. The crop this year in this country is barely 46 % of the very plentiful outturn secured in 1934 and 62 % of the average. The Hungarian crop is also very poor, being 31.5 % smaller than the relatively large crop of last year and nearly 20 % below the average. The Romanian crop, according to the third official estimate, is practically equal to that of last year and 12.8 % below the average. The first official estimate for Bulgaria, on the other hand, indicates a plentiful crop.

The chief cause of the poor yields secured in the Danube countries was the summer drought which occurred during the critical stage of growth. The yield of the four countries taken together is about 16.3 bushels per acre against 21.5 last year and an average of 21.0 bushels per acre.

It should be remarked that the quality of the maize crop in these four countries is excellent and the degree of humidity very low, being generally not above 17 %.

In Italy also crop prospects, which at first were good, have gradually worsened as a result of the long drought and the exceptionally high temperatures of the summer months. The good rains of the second half of August came too late for the greater part of the crops, but the later crops benefited. The available official figures refer only to the *maggengo* variety, of which the greater part of the Italian production consists, and indicate a crop of 91 million bushels against 115 millions last year and an average of 97 million bushels. The *cinquantino* variety, which generally occupies a much smaller area than that sown to *maggengo*, was grown on an area of 366,000 acres, a figure slightly smaller than that of last year but considerably above the average.

Czechoslovakia and Austria again as a result of the drought, secured smaller crops this year than those of last year and the average.

The estimates of the seven European countries considered give a total of 478 million bushels against 635 millions last year and an average of 584 million bushels, or decreases of 24.8 % and 18.3 % respectively. A decrease of 157 million bushels compared with 1934 and of 106 million bushels compared with the average will obviously not fail to affect the fodder supplies of European countries and will give an outlet for Argentine exports, particularly as the reduction in the maize crop is not offset by an equivalent increase in the production of the other fodder crops. The ratio of European production, compared with last year's crops and the average, will not be appreciably affected either by the figures of the countries which have not yet issued estimates and which are of minor importance (Albania, France, Greece, Poland, Portugal, Spain and Switzerland) or by subsequent modifications.

Official statistics of both area and production in the U. S. S. R. are as yet unavailable. The available information indicates that harvesting in the chief maize growing areas is considerably behindhand.

Of the Asiatic countries, Manchukuo reports a crop exceeding both that of last year and the average while the crop in Turkey is slightly smaller. Statistics

of the crop results of India, the largest producer of Northern Asia, and of Indo-China, which is of increasing importance in world maize trade, are still lacking.

Only three countries of North Africa, and these are of lesser importance, have published estimates of production, namely, French Morocco, Algeria and Eritrea. All three obtained results appreciably smaller than those of last year and the average.

The following table gives the available figures of the maize crops in the northern hemisphere, expressed in millions of bushels.

	Millions of bushels of 56 lb		
	1935	1934	Average 1929-33
United States . . . . .	2,213	1,377	2,490
Romania, Yugoslavia, Hungary and Bulgaria . . . . .	378	507	473
Italy 1), Czechoslovakia 2), Austria . . . . .	99	128	111
<i>Total of seven European Countries . . . . .</i>	<i>477</i>	<i>635</i>	<i>584</i>
Manchukuo, Turkey . . . . .	89	77	85
French Morocco, Algeria, Eritrea . . . . .	5	10	6
<b>GENERAL TOTAL (13 countries)</b>	<b>2,784</b>	<b>2,099</b>	<b>3,165</b>

1) For Italy only *maizengo* — 2) For Czechoslovakia crop grown alone only, the average for this country is an estimate

In view of the relatively great importance of the maize crops of the thirteen countries considered, a fairly exact idea of this year's production in the northern hemisphere can be formed. It can thus be stated that the total crop is a poor one, being about 12 % smaller than the average. It exceeds last year's total by 33 % only because the crop in the United States in 1934 was exceptionally poor.

## II. — WORLD TRADE IN MAIZE.

The course of the world maize trade during the last twelve months was largely influenced by the great decrease in production of fodder, and of maize in particular, in 1934 in the United States and by the abnormally large maize production obtained in Argentina in March-April of this year.

As was to be expected, the United States imported considerable quantities of maize from Argentina though they were not as large as trade circles expected them to be. The surplus of maize exports from the United States began to contract as early as May 1934 and by September an excess of imports over exports was recorded. During the thirteen months from September 1934 to September

1935 the United States imports exceeded exports. The following figures show the excess of imports over exports in thousands of bushels.

September 1934	126	April 1935	1,429
October "	244	May "	3,027
November "	295	June "	6,118
December "	1,063	July "	5,642
January 1935	1,854	August "	8,508
February "	1,791	September "	2,984
March "	3,283		—
Total of 13 months . . . 36,364			

This excess of imports of the United States, amounting to more than 36 million bushels, has relieved the world market which had become considerably overloaded by the large Argentine crop.

This year's maize crop in the United States is in the neighbourhood of that of 1930 in volume but is about 148 million bushels greater. It also approximates to that of 1933 which, however, was larger by 139 million bushels. After the 1930 harvest, which amounted to 2,065 million bushels, the United States recorded net exports of 1,417,000 bushels compared with net exports of 2,925,000 bushels after the 1933 harvest which amounted to 2,352 million bushels. This evidence leads one to expect that this year's maize crop, combined with a good crop of barley and oats and a high percentage of wheat for fodder, will be sufficient to meet internal requirements without being supplemented by more considerable imports, particularly in view of the large decrease in the numbers of pigs and cattle resulting from the fodder scarcity of 1934.

The other chief factor in world maize trade, that is, the enormous Argentine crop, will continue to influence the market for fodder cereals during the coming months. The official figures, which may be of use as a basis for forecasts, are reproduced below. The production obtained during the months March-April of this year amounted to 453 million bushels. Stocks from the preceding year being negligible (445,000 bushels) at the beginning of this year, the quantity available in Argentina was about 453 million bushels. According to the official estimates, internal consumption was expected to amount to 49,211,000 bushels while seeding requirements were placed at 5,905,000 bushels, making a total of 55,116,000 bushels. After deducting this quantity from total supplies there remain 398 million of bushels available for export, which is the figure calculated by the Argentine Government on 1 April of this year. Exports during April amounting to 23 millions of bushels, supplies on 1 May were 375 million bushels. During the five months 1 April-31 August of this year, Argentina exported only 138 million bushels. On 1 September, therefore, 260 million bushels were theoretically still available. If it is assumed that the weekly exports during the first three weeks of September amounted to about 5,900,000 bushels it is evident that the Argentine Government has deducted the exports of the first

seventeen days of September to arrive at 246 million bushels as the figure of supplies available for export on 17 September.

Calculated on the basis of the exports during September, the supplies available on 1 October amount to 235 million bushels.

The following table shows the course of Argentine exports during the last ten years.

### *Production and Exports of Argentine Maize*

(Thousands of bushels of 56 lb.)

Crop Year and Commercial Year (May April)	Produc- tion in April-May of the first year indicated	EXPORTS						
		During the first five months following the harvest (May September)		During the remain- ing seven months up to end of year (October April)		Total for year		
						Absolute figures		° produc- tion 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1935 (1935/36)	452 738	139 530	27 904	1) 235 459				
1934 (1934/35)	256 919	107 082	21 416	104 767	14 968	211 849	17 653	82.5
1933 (1933/34)	267 765	92 729	18 547	123 121	17 590	215 850	17 987	80.6
1932 (1932/33)	299 334	135 373	27 074	95 784	13 684	231 157	19 263	77.2
1931 (1931/32)	419 668	191 335	38 266	203 264	29 038	394 599	32 885	94.0
1930 (1930/31)	280 623	79 619	15 925	141,959	20 279	221 578	18 464	79.0
Average 1925-1929 (1925/26-1929/30)	278 560	119 239	23 849	104 067	14 866	223 306	18 609	80.2

1) Exportable supplies on 1 October, calculated from the official estimates of production and trade, exportable supplies on 17 September of this year, as estimated by the Argentine Government were 245,864 000 bushels

It will be seen that the year 1931 and the commercial year 1931-32 offers the best comparison with the present year. The crop of the year 1931 was preceded by a relatively plentiful crop leaving a large carryover, while that of this year, on the other hand, was larger but followed a more modest one which did not leave substantial stocks for this year. It may therefore, be stated that, from the commercial point of view, the two years are very similar. Having regard to the fact that exports from Argentina between 1 May 1931 and 30 April 1932 reached 395 millions of bushels, the export of the supplies on hand on 1 May of this year, which, according to the foregoing evaluations, were 375 million bushels, should be effected without considerable difficulty. An examination of the first five months of the present year shows that exports were not as heavy as they were in the year 1931-32. The average monthly exports of this year amount to only 28 million bushels compared with an average for the same period in the earlier year of 38 million bushels. To dispose of the 235 million bushels available on 1 October, it would be necessary to export 33.6 million bushels monthly in the remaining months, that is, nearly the monthly average for the whole of the year 1931-32.

The pressure brought to bear by Argentine farmers on the Government with the object of increasing the guaranteed minimum price partly explains why they have held on to their stocks. The producers, in fact, demanded a minimum gua-

ranted price of 6 pesos per quintal instead of the 4.4 fixed by the Government. In view of the situation of the world fodder market and the enormous risk to which the finances of the State would be exposed, the Government was not able to guarantee the increase. Subsequently the great drought which destroyed pastures and reduced the prospects of the wheat crop resulted in a considerable increase in the internal demand for maize and in a decrease in exports. At present no official estimate is available of the increase in domestic consumption in Argentina but that there is an increase is asserted in both agricultural and commercial quarters. If it is assumed that the crop estimate will not be appreciably modified, there are grounds for believing that exportable supplies on 1 October were smaller than the 235 million bushels calculated above, compared with 203 million bushels actually exported during the seven months from October 1931 to April 1932.

In order further to elucidate the present situation of world trade, it is useful to analyse the part played by Argentina in world trade during the period 1 May 1931 to 30 April 1932. While, during this period, Argentina exported 395 million bushels, Romania exported 53 million bushels, Yugoslavia 5 million bushels, Hungary 0.2 million bushels and Bulgaria 5 million bushels, the four countries making a total of 63.2 million bushels. During the seven months, October 1931 to April 1932, the total for these four countries amounted to 45 million bushels, the greater part coming from Romania. As the total crop obtained in the four Danube countries in October 1931 was 461 million bushels while that of this year was only 378 million bushels, it is evident that Danubian competition with Argentine maize will be at a minimum. To judge from the statistics of this year's crop, the course of trade in the four Danubian countries will be as follows. One of these countries, namely Hungary, which in former years has been an exporter throughout the Danubian year (1 November-31 October) will become an importer. This country, notwithstanding the rather large outturn of 1934, began in April of this year to import more maize than it exported. The excess of imports over exports was 114,000 bushels in April, 272,000 bushels in May, 437,000 bushels in June, 748,000 bushels in July, 1,051,000 bushels in August and 1,409,000 bushels in September. In view of the fact that these quantities were imported after a comparatively plentiful crop, the opinion held in commercial quarters (based on private estimates) that Hungary will have to import about 12 million bushels during the coming year, appears to be well founded, provided that there are no very appreciable changes in the fat stock industry which occupies so important a place in the economic activity of the country.

The crop in Yugoslavia, according to the first estimate, is so poor that exports of larger quantities do not appear to be possible, especially as the straw cereals have also yielded less than average.

Theoretically, the Bulgarian crop would allow fairly substantial exports. However, exports from this country during this year will be affected by the less than average crops of the other straw cereals obtained both this year and last. At the end of September of this year the internal demand for maize was continuing and home prices were above those of the world market with the result that none was offered for export.

The only Danube country which will be able to contribute to world exports during the year November 1935-October 1936 is Romania. The possible exports may theoretically be estimated at 35-39 million bushels. This is rendered still more probable by the excellent quality of this year's maize which will make it possible to export considerable quantities before the end of the navigation season on the Danube.

In considering the prospects of world trade from the point of view of the importing countries, the following are the most important factors to be noted.

*Production of maize, barley and oats, during the last ten years  
by groups of countries.*

(In millions of bushels of 56 lb., 48 lb. and 32 lb. respectively)

CLASSIFICATION		1935	1934	1933	1932	1931	1930	Average 1925-29
Maize	1st group 1)	—	—	—	—	—	—	—
	2nd. group 1)	...	227	192	214	177	219	184
	TOTAL	...	227	192	214	177	219	184
Barley	1st group 1)	263	261	263	262	249	248	254
	2nd group 1)	452	460	449	512	432	513	490
	TOTAL	715	721	712	774	681	761	744
Oats	1st group 1)	778	801	911	905	823	813	899
	2nd group 1)	1,172	1,048	1,153	1,176	1,038	1,130	1,161
	TOTAL	1,950	1,849	2,064	2,081	1,861	1,943	2,060

1) For countries contained in the two groups see following table

In the first place, it is to be noted that the group of countries which import maize but which, at the same time, also grow this cereal (see table), have this year obtained crops below the average and will have to import larger quantities than those recorded during the last two years. This is true in particular of Italy which succeeded in reducing its imports considerably in the last three years. Barley production this year in the maize importing countries is practically the same as last year while production of oats is considerably greater, chiefly as a result of Canada's outturn, and reaches the level of the 1930 crop.

The following table shows the quantities imported by the 19 principal maize importing countries from the year 1931-32 which closely resembles this year, particularly insofar as the plentiful supplies of Argentina are concerned.

*Net imports of maize of the 19 principal maize importing countries during the last four*  
(Thousands of bushels)

COUNTRIES AND GROUPS OF COUNTRIES	1931/32			1932/33	
	During the first five months following the Argentine harvest (May-Sept.)	During the remaining seven months up to end of year (Oct-April)	Total for year	During the first five months following the Argentine harvest (May-Sept.)	During the remaining seven months up to end of year (Oct-April)
I. -- COUNTRIES WHICH					
1. - Great Britain & N. Ireland . . .	38,105	68,930	107,035	42,679	57,943
2. - Netherlands . . . . .	24,617	44,313	68,930	23,912	36,908
3. - Germany . . . . .	9,385	16,200	25,585	14,523	9,185
4. - Belgo-Luxemburg Union . . . .	14,692	17,665	32,357	13,826	16,173
5. - Denmark . . . . .	14,582	21,590	36,172	17,216	14,720
6. - Irish Free State . . . . .	10,334	13,893	24,227	11,306	6,917
7. - Norway . . . . .	3,114	4,283	7,397	2,964	3,425
8. - Sweden . . . . .	6,204	6,921	13,125	4,866	4,842
<i>Total of 1st group . . .</i>	<i>121,033</i>	<i>193,795</i>	<i>314,828</i>	<i>131,352</i>	<i>150,113</i>
II - COUNTRIES WHICH					
1. - Italy . . . . .	15,665	15,905	31,570	14,728	2,240
2. - France . . . . .	18,377	27,011	45,388	20,850	22,672
3. - Spain . . . . .	2,461	6,638	9,099	4,988	2,457
4. - Czechoslovakia . . . . .	11,019	15,373	26,392	5,102	1,787
5. - Portugal . . . . .	791	1,216	2,007	1,323	1,059
6. - Greece . . . . .	468	5,476	5,944	571	512
7. - Austria . . . . .	5,468	8,011	13,479	6,007	11,111
8. - Poland . . . . .	614	150	764	102	75
9. - Switzerland . . . . .	2,453	4,445	6,898	2,791	2,590
10. - Canada . . . . .	3,272	5,535	8,807	2,043	5,756
11. - Japan . . . . .	1,378	2,496	3,874	752	31
<i>Total of 2nd group . . .</i>	<i>61,966</i>	<i>92,256</i>	<i>154,222</i>	<i>59,317</i>	<i>50,320</i>
<b>GENERAL TOTAL . . .</b>	<b>182,999</b>	<b>286,051</b>	<b>469,050</b>	<b>190,669</b>	<b>200,433</b>

1) Four months.



*Argentine commercial years (May-April) and during the first five months of this year.*  
of 56 lb.).

1933/34				1934/35			1935/36
Total for year	During the first five months following the Argentine harvest (May-Sept.)	During the remaining seven months up to end of year (Oct.-April)	Total for year	During the first five months following the Argentine harvest (May-Sept.)	During the remaining seven months up to end of year (Oct.-April)	Total for year	During the first five months following the Argentine harvest (May-Sept.)

IMPORT BUT DO NOT PRODUCE MAIZE.

100,622	44,719	64,446	109,165	46,089	61,316	107,405	49,592
60,820	19,885	24,538	44,423	14,074	21,739	35,813	13,511
23,708	2,705	6,720	9,425	6,287	10,944	17,231	4,035
29,999	12,622	14,535	27,157	14,118	14,051	28,169	1) 10,401
31,936	9,952	4,590	14,542	3,559	4,484	8,043	5,307
18,283	6,346	5,764	12,110	6,390	4,913	11,303	1) 5,102
6,389	2,874	3,417	6,291	2,094	2,327	4,421	2,539
9,708	4,535	5,441	9,976	1,138	606	1,744	972
281,465	103,638	129,451	233,089	93,749	120,380	214,129	...

IMPORT AND PRODUCE MAIZE.

16,968	— 1,575	2,685	1,110	4,779	1,961	6,740	5,823
43,522	9,051	17,255	26,306	7,582	19,224	26,806	6,303
7,445	1,579	1,405	2,984	1,630	1,213	2,843	1) 555
6,889	4,303	3,866	8,169	5,145	2,961	8,106	1,716
2,382	1,457	1,579	3,036	1,484	905	2,389	1) 138
1,083	587	51	638	16	874	890	1) 764
17,208	8,433	11,338	19,771	7,334	11,913	19,247	1) 4,374
177	83	118	201	12	0	12	0
5,381	1,102	1,894	2,996	1,189	1,905	3,094	1,165
7,799	2,071	3,870	5,941	3,165	4,425	7,590	5,866
783	51	0	51	0	8	8	1) 1,602
109,637	27,142	44,061	71,203	32,336	45,389	77,725	...
391,102	130,780	173,512	304,292	126,085	165,769	291,854	...

It is to be noted that the policy of the Governments of most of these countries is directed towards increasing the domestic fodder crops and limiting imports in order to reduce payments abroad.

The determined efforts of Germany to increase national fodder production are especially noticeable. Everything that agricultural science teaches or recommends is experimented with and put into execution. Thus, attempts are made to facilitate the movement of pig-raising to the east, that is, to discourage excessive pig-raising in north-west Germany based on imported barley and maize and to stimulate this industry in the east where rye and potatoes are available in abundance. The reduction in the size of rye screens, with the object of obtaining a larger supply of secondary product, the perfecting of silos, the increase in winter catch crops are other methods of augmenting national fodder supplies and limiting imports, more particularly of barley and maize. Denmark, Sweden and Switzerland are similarly concerned to transform their present fodder economy with the aim of eliminating imports.

Many years will be necessary before these plans can be brought to fruition and before they become an important part of the economy of the country. They are noted here because they may have important consequences for the countries which export fodder and also because they explain the decline in the imports of certain countries.

The fact that maize arrives in large quantities in Western and Central Europe is to be attributed to the intrinsic quality of this cereal — this will have an important bearing also on the future — and to the fact that at the moment it is still the cheapest fodder.

*Monthly average prices of maize, barley and oats at Liverpool-London.*

(in gold shillings per quintal)

			Maize yellow La Plata	Barley Canadian No 3	Oats La Plata
October	1935		1) 4/8	1) 5/7	1) 7/1
September	"		4/5	5/7	6/9
August	"		4/2	5/3	5/9
July	"		4/2	5/4	5/4
June	"		4/5	5/10	5/5
May	"		4/6	6/5	5/7
October	1934		5/8	7/6	5/4
September	"		6/2	8/3	5/8
August	"		6/8	8/2	6/-
July	"		5/4	6/9	4/11
June	"		5/-	6/5	4/2
May	"		4/8	5/9	3/7
.....			...	...	...
.....			...	...	...
October	1931		5/5	7/10	8/1
September	"		5/7	8/5	7/9
August	"		6/1	8/5	7/6
July	"		6/7	8/9	7/3
June	"		6/8	8/11	7/3
May	"		7/3	9/1	7/10

1) Three weeks only.

The prices of the three fodder cereals considered, after touching a very low point during July and August, tended to increase during the second week of September.

V. DESMIREANU.

## MAIZE

*Austria:* Toward the end of September ripening progressed slowly. The ears were fairly good but grain formation was very irregular. In Styria and Carinthia prospects improved while in the areas that suffered from drought in Burgenland losses though lack of moisture could not be made up.

*Bulgaria:* Weather conditions in September were favourable to maize ripening. The crop is plentiful this year and bringing in began in the last decade of the month.

### Maize.

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver-							1934	Aver-
	1,000 acres			= 100	age	1,000 centals			1,000 bushels			= 100	age
					= 100								= 100
Austria . .	162	160	151	101.1	107.0	2,253	3,417	2,794	4,023	6,102	4,989	65.9	80.7
Bulgaria . .	1,775	1,692	1,796	104.9	98.8	22,244	17,411	19,583	39,722	31,091	34,970	127.8	113.6
*France 1) . .	876	846	808	92.9	97.3	...	11,241	11,076	...	20,073	19,779	...	...
Hungary . .	2,879	2,777	2,764	103.7	104.2	31,675	46,256	39,508	56,563	82,600	70,550	68.5	80.2
Italy 1) 2) . .	3,251	3,293	3,332	98.7	97.6	50,819	64,510	54,205	90,749	115,197	96,794	78.8	93.8
Italy 3) . .	366	385	291	95.0	125.7	...	6,059	3,367	...	10,820	6,013	...	...
Romania . .	12,765	12,368	11,653	103.2	109.5	105,822	106,840	121,329	188,969	190,786	216,659	99.0	87.2
*Switzerland . .	2	2	3	100.0	79.1	...	55	68	...	99	121	...	...
*Czechoslovakia 4) . .	192	222	—	86.6	—	2,606	3,539	—	4,653	6,319	—	73.6	—
*Yugoslavia . .	...	5) 6,563	5) 6,011	...	...	52,146	113,631	84,599	93,118	202,912	151,070	45.9	61.6
*Canada . .	158	161	142	98.1	111.0	...	3,807	2,976	...	6,798	5,314	...	...
United States . .	* 93,590	* 87,795	* 103,353	106.6	90.6	1,239,280	771,191	1,394,160	2,213,000	1,377,126	2,489,572	160.7	88.9
*Manchukuo . .	...	2,774	2,397	...	...	39,683	32,597	36,706	70,863	58,209	65,547	121.7	108.1
*Turkey . .	...	1,079	951	...	...	10,337	10,783	11,013	18,460	19,255	19,667	95.9	93.9
Algeria . .	17	19	23	91.1	74.5	132	158	139	236	282	249	83.8	94.9
Eritrea . .	25	28	24	88.5	102.0	132	194	206	236	346	368	68.2	64.2
*Kenya 7) . .	126	123	174	102.4	72.3	...	1,939	2,463	...	3,462	4,398	...	...
French Morocco . .	996	986	771	101.0	129.1	2,793	5,425	3,021	4,988	9,688	5,395	51.5	92.4
TOTAL . .	115,460	109,118	123,867	105.8	93.2	1,455,150	1,015,402	1,634,945	2,598,486	1,813,218	2,919,546	143.3	89.0

\* Not included in the total. — 1) Area estimated on 1 June. — 2) Spring crop (*maggengo*). — 3) Summer crop (*cinquantino*). — 4) Crop grown alone. — 5) Area harvested. — 6) Area expected to be harvested. — 7) Cultivation by Europeans.

*Hungary:* Harvesting of early varieties of maize was in progress at the beginning of October and that of the later types had also begun in some places.

The favourable weather of the second half of September effected a further improvement in both the ears and the grain of the maize crop. This improvement, unfortunately did not occur on sandy and alkaline lands. Stalk is short and in many instances without ears.

*Romania:* The warm dry weather in the second half of September favoured ripening, which will be completed in all districts where growth has been normal.

*Yugoslavia:* According to the most recent information, the maize crop worsened in condition in September even in the Banat area where the crop is expected to be 50 % below last year's.

A poor maize outturn is expected everywhere. The grain of the new crop, however, is stated to be of good quality and very dry and consequently it will not be necessary to have recourse to artificial drying.

*Argentina:* During September preparatory work for the coming sowings was rendered difficult by the dry condition of the soil in the Provinces of Buenos Aires and Santa Fé. The difficulties were still greater in the Province of Córdoba owing to the scarcity of animals for ploughing. In this province and in those of Santiago del Estero and Entre Ríos an increase in area is expected compared with last year to compensate for the decline in the area intended this year for wheat and linseed.

(Telegram of 23 October): Field work is well advanced and conditions are favourable for sowing of maize.

*United States:* The bulk of the maize crop had safely matured by the beginning of October but part of the late crop was materially damaged by frosts in the first week of the month in Illinois, Iowa and Missouri. According to a telegram received on 24 October, the maize in the western part of the maize belt was too wet for husking but that in the east of the Mississippi was in satisfactory condition.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning maize area.

	1935	1934
	acres	acres
Area harvested in August . . . . .	339,300	316,000
Area harvested from 1 January to 31 August	3,853,200	3,116,300
Area of standing crops at end of August . .	1,160,700	1,243,700

*Palestine:* The maize crop has been taken off and fair yields were realized.

*Egypt:* The rest of the late areas under *nili* maize crop in Upper Egypt was completely sown at the beginning of September, and flowering took place in all early cultivations. Cob and seed formation are in progress in the other localities. In the south of the Delta many early cultivations started maturation and the harvesting of partial areas was begun. The condition of the crop is satisfactory.

The cotton worm appeared in certain provinces, mainly in Beni-Suef, Fayum and Minya where many areas were infested. The growth has been affected in some cultivations, but it has improved following the control of the pest.

*Kenya:* In September favourable rains fell in the main maize areas.

## RICE

*British Guiana:* In September the autumn rice crop was being reaped. Prospects were good.

*Taiwan:* Weather has been rather too wet for second crop rice. Conditions of growth are average.

*India:* In Bengal rainfall was on the whole light to moderate in the latter half of September and first half of October. Transplanting of winter padi was practically finished by the end of September. Crop condition in mid-October was fair and more rain was needed.

In Bihar and Orissa rain varied considerably in both period and locality. Flooding occurred in some areas. Crop condition was fair.

The Central Provinces had cloudy or rainy weather up to the end of September but subsequently clear and warm. Crop condition was good.

General and beneficial rain fell in September in the United Provinces but toward the end of the month it decreased and the beginning of October was dry. Crops were still, however, doing well and prospects were favourable.

## Rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/36	1934/35	Average 1929/30 to 1933/34	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36	
				1934/ 1935	Average age							1934/ 1935	Average age
1,000 acres			= 100	= 100	1,000 centals			1,000 bushels of 45 lb.			= 100	= 100	
Bulgaria . . . . .	19	20	18	94.7	102.7	380	404	348	844	898	772	94.0	109.3
Italy . . . . .	340	323	345	105.1	98.4	14,494	13,602	14,701	32,209	30,226	32,669	106.6	98.6
United States . . . . .	789	781	890	101.0	88.7	17,505	17,233	18,784	38,900	38,296	41,742	101.6	93.2
Chosen . . . . .	4,127	4,195	4,073	98.4	101.3	...	68,402	68,163	...	152,001	151,471	...	...
India 1) . . . . .	74,082	75,393	75,153	98.3	98.6	...	...	...	...	...	...	...	...
Indo-China:													
Annam 2) . . . . .	961	945	1,000	101.7	96.1	...	7,540	7,592	...	16,755	16,870	...	...
Tonkin 3) . . . . .	1,236	1,156	1,208	107.0	102.3	14,037	12,801	14,429	31,192	28,446	32,063	109.7	97.3
Japan . . . . .	7,855	7,775	7,906	101.0	99.4	247,813	212,116	250,969	550,684	471,359	557,697	116.8	98.7
Egypt 4) . . . . .	459	387	301	118.5	152.5	—	—	—	—	—	—	—	—

1) First estimate. — 2) First half-year. — 3) Rice of the fifth month. — 4) Summer rice (señ).

In Bombay also the rains tended to diminish during this period but crops were doing well up to the first week of October.

Weather in Assam was seasonable and crop prospects fair.

In Madras, where transplanting proceeded, there was heavy rain in the middle of September and light to moderate rain subsequently.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning rice area:—

	1935	1934
	acres	
<i>Area harvested in August:—</i>		
Wet padi . . . . .	435,900	411,700
Dry padi . . . . .	4,400	2,000
<i>Area harvested 1 January to 31 August:</i>		
Wet padi . . . . .	7,283,300	7,095,500
Dry padi . . . . .	943,200	947,700
<i>Area of standing crop at end of August:</i>		
Wet padi . . . . .	1,272,100	1,286,000
Dry padi . . . . .	31,100	46,700

*British Malaya:* The dry weather that had prevailed in most parts of the Peninsula throughout July came to an end between 11 and 15 August. Heavy rains brought the total rainfall for the month up to average nearly everywhere. The rains in the north were only just in time to relieve a situation that was rapidly becoming critical.

In Krian and Perak North generally nurseries and early transplanted fields showed good recovery from the drought. In Perak South, planting was in progress or completed in several districts but was rather late in the up-river *mukims* with resulting loss from heavy rains. In Province Wellesley and Penang clearing and planting was in full swing following the rains. In Pahang North transplanting was practically completed in the riverine areas and in Pahang South was in full swing, owing to lack of water the area planted was somewhat less and crop condition not very satisfactory. In Malacca flooding made some replanting necessary in some districts. In Johore South the crop suffered from lack of water on the west coast and in some areas of Johore North the situation was becoming critical.

*Egypt:* Harvesting of *sefi* rice has started in early cultivations since the middle of the month. General cultivation began to mature. Growth and formation of ears are still progressing in late cultivations. The condition of the crop is satisfactory.

Growth of *mli* rice crop is satisfactory. Ear-formation is general in most of the farms. Early cultivations started maturity. The crop is normal.

## POTATOES

Weather conditions in general do not appear to have been favourable on the whole to the potato crops during the year which is now closing. In the two chief potato growing countries of Europe, Germany and Poland, the results were unsatisfactory. In Germany the total area under the crop was 5 % smaller than last year while production is 15.3 % below that of last year and 10.8 % below the average of the preceding five years. The decline is especially noticeable in the case of early potatoes, the area sown to these being about 40% smaller than last year and the average; the corresponding production is nearly 54 % smaller than the five-year average and about 40 % smaller than that of last year.

In Poland also, the second largest producer, the crop was a poor one amounting, according to the first estimate, to only 87.8 % of the plentiful outturn of last year, which however, was the largest obtained during the last ten years, and to 3.3 % less than the average.

## Potatoes.

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
				1934	Average							1934	Average
			= 100	= 100	= 100			= 100					
1,000 acres	1,000 centals	1,000 bushels of 60 lbs											
Germany (s)	358	585	599	61.1	59.7	30,644	51,851	65,789	51,073	86,417	109,647	59.1	46.6
Austria (t)	6,458	6,598	6,434	97.9	100.4	842,806	979,488	913,644	1,404,649	1,632,448	1,522,710	86.0	92.2
Belgium . .	494	506	484	97.8	102.2	48,581	60,614	58,175	80,967	101,021	96,957	80.1	83.5
Bulgaria . .	402	397	418	101.4	96.3	61,001	71,912	81,905	101,667	119,851	136,505	84.8	74.5
*Denmark . .	37	35	32	104.9	116.7	2,756	1,857	1,413	4,593	3,094	2,355	148.4	195.0
Estonia . .	186	189	169	98.2	110.0	...	30,269	24,500	...	50,447	40,832	...	...
Finland . .	182	177	165	102.5	110.5	18,613	19,668	18,530	31,021	32,779	30,883	94.6	100.4
*France . .	210	206	185	102.0	113.7	25,640	25,119	21,586	42,732	41,865	35,976	102.1	118.8
*Engl. & W.	3,472	3,449	3,505	100.7	99.1	...	367,139	342,614	...	611,887	571,012	...	...
*Scotland . .	463	488	483	95.0	95.9	58,688	77,034	69,758	97,813	128,389	116,263	76.2	84.1
*N. Ireland .	132	140	139	94.3	94.7	...	22,960	22,104	...	38,267	36,841	...	...
Hungary . .	129	137	141	94.0	91.7	...	20,673	21,293	...	34,455	35,489	...	...
*Italy . . . .	749	717	707	104.5	105.9	31,503	46,709	39,112	52,504	77,848	65,185	67.4	80.5
Latvia . . .	1,002	1,001	953	100.2	105.2	...	59,672	49,107	...	99,451	81,844	...	...
Lithuania . .	306	266	237	115.0	128.8	32,786	31,875	26,273	54,642	53,123	43,787	102.9	124.8
Luxemburg . .	461	452	398	102.0	115.9	40,189	54,964	41,234	66,980	91,606	68,722	73.1	97.5
Malta . . . .	41	40	41	100.6	98.9	3,363	4,308	4,431	5,604	7,180	7,385	78.0	75.9
Norway . . .	8	7	7	116.1	110.4	392	539	597	654	899	994	72.7	65.8
Netherlands .	123	120	118	102.2	103.7	18,692	17,649	19,630	31,152	29,414	32,717	105.9	95.2
Poland . . . .	345	356	414	97.0	83.4	55,003	64,820	73,447	91,670	108,031	122,409	84.9	74.9
*Romania . .	...	6,825	6,662	...	...	647,870	737,899	669,965	1,079,762	1,229,807	1,116,587	87.8	96.7
Switzerland .	511	505	483	101.1	105.7	...	42,367	39,367	...	70,610	65,611	...	...
Czechosl. (s)	112	112	115	100.0	97.5	14,551	18,629	15,894	24,250	31,048	26,489	78.1	91.5
Canada . . .	99	97	87	102.1	114.1	4,436	6,705	6,989	7,393	11,174	11,648	66.2	63.5
United States	1,750	1,753	1,701	99.8	102.8	...	204,352	199,589	...	340,580	332,641	...	...
Algeria (s)	508	569	551	89.2	92.2	38,345	48,095	44,527	63,908	80,158	74,212	79.7	86.1
Eritrea (t)	3,256	3,312	3,188	98.3	102.1	219,600	231,253	205,370	366,000	385,421	342,283	95.0	106.9
TOTALS . . .	21,473	21,800	21,377	98.1	100.5	2,187,400	2,553,250	2,380,247	3,662,418	4,255,343	3,907,010	80.1	92.3

(1) Area under 500 acres. — s) Early potatoes. — t) Late potatoes.

The figures for production in the two next largest European producers, France and Czechoslovakia, are not yet known and a forecast of world production would thus be largely conjectural. In France, although the information shows much variation from district to district, the late varieties seem to have given fairly good results. In Czechoslovakia, the position at the beginning of September was not satisfactory but it improved slightly during the course of the month. Among the less important European countries, England and Wales secured yields appreciably lighter than these of 1934 and the average. This is true also of Austria, Belgium, Hungary, the Netherlands and Switzerland. the declines sometimes amounting to 25 % compared with last year.

To sum up, total European production is expected to be appreciably below the very high outturn of 1934 and probably smaller than the average production of the preceding five years.

The United States indicate that this year's crop will be 5% smaller than the good crop of 1934 but about 7 % larger than the average.

V. B.

*Germany:* Good rainfall was experienced in all parts of the country during September. The rains were very beneficial for hoed crops, especially potatoes, growth of which has now been resumed after having been held up by the summer drought.

*Austria:* Potatoes benefited again from the late rains but total production, notwithstanding an improvement in the liftings made so far, will be much below that of last year.

*Belgium:* Lifting of potatoes is now going forward actively and will soon be finished. Yields in general are mediocre, 110-180 centals per acre (180-300 bushels per acre) but vary widely according to district.

*Estonia:* Owing to excessive rains, the quality of potatoes this year is below average and tubers have rotted to some extent.

*Irish Free State:* Main crop potatoes made satisfactory progress during the month. Blight was to be seen on practically all potato fields, and, in some cases, was reported to have done appreciable damage to the crop. The tubers generally, however, are reported to be of good table quality and the yield promises to be about average.

*France:* Lifting of potatoes was going forward well at the beginning of October. The earlier crops suffered much from drought but the later varieties benefited by the favourable weather.

*Great Britain and Northern Ireland* The heavy rain of September, while it benefited root crops, interfered in some districts with potato lifting

The crop appears to be healthy - only a few cases of disease have been reported - but the tubers are on the small side and the yield, it is anticipated, will be lighter than usual. Some cases of second growth, caused by the recent wet spell, have been reported. In a few areas of Scotland there was some blight among potatoes but the harvest was rather above average.

*Hungary:* Lifting of early potatoes was practically completed by the end of September. The tubers are generally small. Lifting of the main crop has also begun. The tubers in the latter crop improved considerably in the last three weeks of September and they may continue to improve. There are, however, many small, withered and unripe tubers.

*Lithuania:* Owing to the excessive rains, a fairly large proportion of the potatoes planted in low-lying areas and in heavy soil have rotted.

*Luxemburg:* The condition of hoed plants, which were suffering from the drought of July, improved after the rains of September. The crop, however, is about one fourth smaller than last year's.



*Netherlands:* The quality of potatoes for consumption is good in general but in some sandy districts potatoes are reported to be spotty. The yield in high areas is particularly low.

Potatoes for starch are small owing to the drought. Late varieties, such as Chorbecke, benefited from the rains of the last few weeks and, in spite of the wilting of rains, the yield is good and the starch content high.

*Sweden:* Lifting of potatoes was hindered by rain and in several areas in the north the tubers suffered damage from rotting and frost.

*Switzerland:* The intermittently wet weather caused a little delay in potato lifting and supplies are consequently not very plentiful. Although yields are appreciably below those of last year, it appears that home production will suffice to meet the internal requirements of the country.

*Palestine:* Appreciable areas have been planted with potatoes under irrigation. It is expected that the area under potatoes will be largely increased this season.

*Algeria:* Infestation of nocturnal caterpillar was notified in Maskara in the *département* of Oran and serious damage was done to the potato crop. In Constantine the appearance of the potato fields was generally good.

## SUGAR

The sugar beet crops this summer began to suffer rather seriously owing to the drought which in many instances menaced their very existence. The situation improved, however, with the rains which fell at the end of August. Subsequently, the rains of September and the beginning of October still further improved the growing conditions sufficiently, if not completely, with the result

### 1935-36 Campaign — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1935	1934	1929 1933	1935	1934	1929 1933	1935	1934	1929 1933	1935	1934	1929 1933
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
4th WEEK OF SEPTEMBER.												
Germany . . . . .	18.3	18.9	18.7	16.5	14.6	16.0	17.5	17.2	17.7	3.2	3.2	3.2
Denmark . . . . .	18.5	11.2	1) 17.1	12.2	15.6	1) 12.9	16.2	13.1	1) 17.7	3.0	1.5	1) 3.0
Finland . . . . .	15.6	—	19.2	21.0	—	25.0	14.1	—	15.8	2.1	—	3.0
France . . . . .	17.6	19.5	2) 18.9	14.6	12.3	2) 18.9	15.8	17.7	2) 17.0	2.8	3.5	2) 3.2
Netherlands . . . . .	26.9	—	—	—	—	—	16.7	—	—	4.5	—	—
Czechoslovakia . . . . .	13.5	16.6	17.7	9.4	11.0	11.3	18.7	17.4	18.5	2.5	2.8	3.3
5th WEEK OF SEPTEMBER.												
Czechoslovakia . . . . .	14.3	—	3) 17.8	9.6	—	3) 11.0	18.9	—	3) 18.6	2.7	—	3) 3.3
2nd WEEK OF OCTOBER.												
Netherlands . . . . .	27.9	—	—	—	—	—	16.8	—	—	4.7	—	—

1) Average, 1929, 1930 and 1933. — 2) Average 1930 to 1933. — 3) Average 1929 and 1930.

that liftings, where they have been accomplished and where they are now being done, have given better yields than those expected some weeks ago.

Crop condition in Germany improved during the first half of October as a result of rains which, however, in some areas, were not substantial enough to facilitate liftings, the soil having become too hard. This is true in particular of Saxony, East Brunswick and South-west Hanover. Liftings have already been finished in France. The beets benefited by the rains of the end of September and the first days of October, but the increase in sugar content was not appreciable. Yields per acre varied considerably. In Czechoslovakia also there was an improvement in the situation at the final stage of growth owing to the rains which alternated with fine spells. The sugar content increased appreciably with the growth in the roots which reached the average weight of the last ten

*Production of Beet Sugar (raw).*

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1935-36	
	1935-36 <sup>1)</sup>	1934-35	Average 1929-30 to 1933-34	1935-36 <sup>1)</sup>	1934-35	Average 1929-30 to 1933-34	1934-35	Average
	Thousand centals			Short tons			= 100	= 100
Germany . . . . .	35,181	37,104	38,134	1,759,015	1,855,197	1,906,664	95	92
Austria . . . . .	3,748	4,921	3,390	190,000	246,028	169,482	76	111
Belgium . . . . .	5,567	5,859	5,412	278,300	292,935	270,574	95	103
Bulgaria . . . . .	371	47	821	18,530	2,368	41,043	783	45
Denmark . . . . .	4,960	1,984	3,651	248,000	100,000	182,563	250	136
Spain . . . . .	4,938	7,055	6,136	247,000	350,000	306,780	70	80
Irish Free State . . . . .	2,016	1,643	513	100,790	82,168	25,641	123	393
Finland . . . . .	176	262	102	9,000	13,098	5,088	67	173
France . . . . .	21,297	26,959	21,875	1,065,000	1,347,941	1,093,743	79	97
Great Britain . . . . .	14,606	14,664	8,385	730,300	733,214	419,254	100	174
Hungary . . . . .	2,068	2,638	3,727	103,400	131,910	186,335	78	55
Italy . . . . .	7,055	7,275	8,298	350,000	360,000	414,877	97	85
Latvia . . . . .	915	1,336	362	45,700	66,790	18,119	68	252
Lithuania . . . . .	584	335	248	29,200	16,767	12,402	174	236
Netherlands . . . . .	4,850	5,120	5,394	240,000	255,996	269,701	95	90
Poland . . . . .	9,755	9,855	12,984	487,800	493,000	649,209	99	75
Romania . . . . .	2,381	2,568	2,501	119,000	128,400	125,041	93	95
Sweden . . . . .	6,140	5,992	4,375	307,000	299,572	218,737	102	140
Switzerland . . . . .	187	187	149	9,400	9,400	7,452	100	126
Czechoslovakia . . . . .	12,315	14,025	18,295	615,700	701,251	914,719	88	67
Yugoslavia . . . . .	1,636	1,378	2,088	81,800	68,920	104,375	119	78
<i>Total Europe a).</i>	<i>140,746</i>	<i>151,207</i>	<i>146,840</i>	<i>7,034,935</i>	<i>7,554,955</i>	<i>7,341,799</i>	<i>93</i>	<i>96</i>
U. S. S. R. . . . .	34,172	30,865	25,945	1,710,000	1,500,000	1,297,209	111	132
<i>Total Europe b).</i>	<i>174,918</i>	<i>182,072</i>	<i>172,785</i>	<i>8,744,935</i>	<i>9,054,955</i>	<i>8,639,008</i>	<i>96</i>	<i>101</i>
Canada . . . . .	1,543	1,295	1,215	78,000	64,773	60,746	120	127
United States . . . . .	27,293	24,817	27,445	1,365,000	1,240,848	1,372,231	110	99
<i>Total North Amer.</i>	<i>28,836</i>	<i>26,112</i>	<i>28,660</i>	<i>1,443,000</i>	<i>1,305,621</i>	<i>1,432,977</i>	<i>110</i>	<i>101</i>
Japan . . . . .	1,102	863	581	60,000	43,170	29,074	128	190
Turkey . . . . .	1,102	1,299	637	60,000	64,961	31,860	85	173
<i>Total Asia . .</i>	<i>2,204</i>	<i>2,162</i>	<i>1,218</i>	<i>120,000</i>	<i>108,131</i>	<i>60,934</i>	<i>102</i>	<i>181</i>
GENERAL { a)	171,786	179,481	176,718	8,597,935	8,968,707	8,835,710	96	97
TOTALS { b)	205,958	210,346	202,663	10,307,935	10,468,707	10,132,919	98	102

a) Not including U. S. S. R. — b) Including U. S. S. R. — 1) Approximate data.

years. In Poland, foliage recovered in the middle of October but there was no corresponding increase in the roots. Sugar manufacture has already begun and it is seen that the damage caused by the drought has not been entirely made up. The beet crops in Great Britain and Northern Ireland continued to grow during the first half of October but the sugar content did not increase, a fact which induced growers to postpone liftings as much as possible with the hope of obtaining thereby an increase in the content.

In the less important beet growing countries also, the beet crops at the beginning of October continued to show progress. An improvement was notified in Belgium but only a modest one, there being a wide margin between the weight of the roots and their sugar content. Crop condition improved in Denmark, the Irish Free State, Hungary, the Netherlands, Sweden, Switzerland and Yugoslavia. The situation is less satisfactory in Austria, Bulgaria, Finland, Latvia and Romania. The U. S. S. R. reports that good yields are anticipated. Weather conditions in Canada and the United States were favourable and a good crop is expected. There is a similar position in Japan and Turkey. With the results of the enquiry, made among the various sugar-beet producing countries, as in previous years, by the International Institute of Agriculture, it has been

*The figures in the following table  
are supplied by the "Association Internationale Sucrière" of Vienna.*

COUNTRIES	Sugar-beet worked up		Raw sugar	
	1935	1934	1935-36	1934-35
THOUSAND CENTALS				
Germany . . . . .	217,543	223,534	35,181	37,104
Austria . . . . .	21,834	31,072	3,696	4,920
Belgium . . . . .	34,613	39,463	5,156	5,889
Denmark . . . . .	33,069	17,154	4,960	1,992
Irish Free State . . . . .	13,228	10,846	2,006	1,642
Hungary . . . . .	14,771	17,823	2,068	2,638
Italy . . . . .	48,502	56,344	7,055	7,466
Poland . . . . .	53,462	56,784	9,546	9,832
Romania . . . . .	15,212	15,678	2,381	2,370
Sweden . . . . .	38,118	40,574	6,151	5,991
Czechoslovakia . . . . .	71,377	83,274	12,315	14,025
Yugoslavia . . . . .	11,662	11,455	1,636	1,378
Turkey . . . . .	7,165	8,885	1,213	1,455
<b>Total . . . . .</b>	<b>580,556</b>	<b>612,886</b>	<b>93,364</b>	<b>96,702</b>
SHORT TONS				
Germany . . . . .	10,876,990	11,176,564	1,759,015	1,855,196
Austria . . . . .	1,091,680	1,553,565	184,786	245,988
Belgium . . . . .	1,730,000	1,970,000	257,810	294,444
Denmark . . . . .	1,700,000	857,700	248,000	99,580
Irish Free State . . . . .	700,000	542,314	100,000	82,082
Hungary . . . . .	740,000	891,131	103,400	131,920
Italy . . . . .	2,400,000	2,817,173	350,000	373,270
Poland . . . . .	2,673,000	2,839,140	477,000	491,572
Romania . . . . .	760,000	783,891	119,000	118,483
Sweden . . . . .	1,906,000	2,028,694	308,000	299,543
Czechoslovakia . . . . .	3,568,810	4,163,622	615,750	701,251
Yugoslavia . . . . .	583,000	572,720	81,800	68,920
Turkey . . . . .	358,000	444,000	61,000	73,000
<b>Total . . . . .</b>	<b>29,087,480</b>	<b>30,640,514</b>	<b>4,665,561</b>	<b>4,835,249</b>

possible to draw up the accompanying table giving the preliminary estimates of the production of sugar in the year 1935-36 which has just opened, and the figures of last year and the preceding five-year period (1929-30 to 1933-34). The figures shown in the table were provided in most cases by governments or by associations of sugar manufacturers. In other cases the figures of the *International Association of Sugar Statistics* of Vienna have been taken and, where these are unavailable, the figures have been estimated on the basis of various factors influencing beet and sugar production (area, crop condition, analysis of beets, etc.).

As indicated in the last *Crop Report*, a decrease in sugar production, compared with last year, is to be expected in Europe (excluding the U. S. S. R.) as a result of the decrease in the area sown to sugar-beet and the course of the year which has not always been favourable for the crops.

In summing up it may be said that the preliminary estimates of all the beet growing countries of Europe (except the U. S. S. R.) indicate that total sugar production this year will be 7 % smaller than that of 1934-35 and 4 % below the average. If the figure for the U. S. S. R. is added, the result will be nearly equal to the average but 4 % smaller than the output of last year. Total world production, which includes not only the production of European countries but also that of North America and two sugar-beet growing countries of Asia, which, taken together, show an increase in output this year, differs only slightly from that obtained in 1934-35 and from the average of the preceding five years.

E. R.

\* \* \*

*Austria:* Rainfall in September was insufficient for the normal growth of sugar-beet. The roots are exceptionally small. At the beginning of October, lifting had not been started owing to the hardness of the soil. Sugar content is comparatively high.

*Belgium:* The growth of beets was much better. The crop will give a satisfactory yield.

*Irish Free State:* Sugar-beet did exceptionally well in most cases in September and promises to come well up to the standard of the 1934 crop.

*France:* Sugar-beets are being lifted in good conditions. Yields in many districts are satisfactory but others again report that weight and, more particularly, sugar content are disappointing. Production is expected to be barely average.

*Great Britain and Northern Ireland:* Lifting and carting of sugar beet had been commenced in England and Wales by the end of September. It is reported that as a result of the rains, the roots improved greatly during September and growth was still apparent. The indications, however, are that the crop may be a light one.

The production of raw sugar obtained in England and Wales from the beginning of the year 1935-36 to the end of September 1935 was 156,980 centals (7.849 short tons) against 649,912 centals (32,496 short tons) in the corresponding period, last year. Average sugar content was 17.3 % against 17.7 %.

## Sugar-beet.

PRODUCTS	AREA					PRODUCTION							
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
				1934	Average							1934	Average
			= 100	= 100	= 100			= 100					
1,000 acres	1,000 centals					1,000 short tons					= 100	= 100	
Germany . .	920	881	936	104.5	98.3	217,171	229,157	235,911	10,858	11,458	11,795	94.8	92.1
Belgium . .	130	136	135	95.8	96.7	34,827	37,252	35,949	1,741	1,863	1,797	93.5	96.9
Bulgaria . .	17	4	39	413.4	43.6	3,401	422	5,945	170	21	297	805.2	57.2
Denmark . .	123	118	89	103.8	137.6	...	23,092	26,092	...	1,155	1,305	...	...
Finland . .	7	7	5	102.1	149.6	...	2,227	881	...	111	44	...	...
France . .	1) 661	707	669	93.5	98.9	...	193,776	165,472	...	9,689	8,274	...	...
Engl. and W.	367	396	286	92.6	128.4	...	90,317	54,733	...	4,516	2,737	...	...
Scotland . .	7	8	1	98.2	661.1	...	1,608	187	...	80	9	...	...
Hungary . .	109	110	145	98.9	75.0	15,995	20,332	25,695	800	1,017	1,285	78.7	62.2
Italy . .	227	224	252	101.5	90.0	...	58,466	57,694	...	2,923	2,885	...	...
Latvia . .	38	36	2) 26	107.6	145.0	...	7,404	3) 4,094	...	370	3) 205	...	...
Lithuania . .	17	10	4) 8	178.1	220.1	...	2,097	1,254	...	105	63	...	...
Netherlands .	101	104	117	96.7	85.7	29,923	39,370	38,399	1,496	1,968	1,920	76.5	77.9
Poland . .	292	277	389	105.3	74.9	...	56,582	73,544	...	2,889	3,677	...	...
Sweden . .	5) 122	125	94	98.0	129.0	...	41,049	27,562	...	2,052	1,378	...	...
Switzerland .	4	4	3	96.8	113.1	...	1,543	1,023	...	77	51	...	...
Czechoslov .	387	393	468	98.6	82.7	...	93,495	109,113	...	4,675	5,456	...	...
Yugoslavia .	5) 69	64	112	108.0	62.0	...	10,583	16,724	...	529	836	...	...
U. S. S. R. .	2,763	2,923	2,940	94.5	94.0	...	250,446	211,071	...	12,522	15,553	...	...
Canada . .	53	52	48	101.2	110.9	10,120	8,254	9,016	506	413	451	122.6	112.2
United States	847	766	785	110.9	107.9	169,000	149,620	178,068	8,450	7,481	8,903	113.0	94.9

1) Estimate of 1 June. — 2) Average 1932 and 1933 — 3) Year 1933. — 4) Average 1930 to 1933. — 5) Unofficial figure.

*Hungary:* In the second half of September crop condition had appreciably improved. At the beginning of October pulling had begun in some localities.

*Italy.* Production of sugar-beet varies from place to place but, on the whole, it is considered to be smaller than that of last year.

The production of raw sugar obtained in Italy from the beginning of the year 1935-36 to the end of September 1935 was 6,102,000 centals (305,000 short tons) against 7,145,000 centals (357,000 short tons) in the corresponding period last year.

*Netherlands:* The beet crop improved in appearance in September and crop condition varied from good to fairly good.

*Sweden:* According to the system of the Institute, crop condition at the 1 October was 107 against 103 the preceeding month.

*U.S.S.R.:* By 10 October 198,573,700 centals (9,928,550 short tons) of sugar-beet had been lifted. This is 22 million centals (1,100,000 short tons) more than the quantity harvested up to the same date last year though the area was then 470,000 acres greater. In the chief growing areas, the unit yield exceeds that anticipated in the Plan.

By 10 October 161,600,000 centals (8,080,000 short tons) of beets had been delivered to sugar factories and 44,000,000 centals (2,200,000 short tons) remained in the fields.

Sugar production from the beginning of the year up to 10 October amounted to about 8,000,000 centals (400,000 short tons) against 4,747,000 centals (237,300 short tons) during the corresponding period last year.

*Argentina:* Production of sugar beet in 1934-35 is estimated at 723,400 centals (36,170 sh. tons), against 477,500 (23,880) in 1933-34 and an average of 403,400 (20,170) during the five years 1930-31 to 1932-33; percentages, 151.5 and 179.3. Corresponding production of beet sugar is 108,000 centals (5,400 sh. tons), 69,800 (3,490) and 47,400 (2,370); percentages: 154.7 and 228.0.

*Barbados.* General heavy rains were experienced in September benefiting the standing crop, the conditions of which were reported to be excellent

*British Guiana:* In August and September weather conditions were exceptionally favourable for the sugar canes. Grinding of the autumn crop was progressing very well and both quality and quantity of the production were expected to be above expectations.

*Haiti:* Total sugar exports in the period October to August were 719,600 centals (35,980 short tons) against 495,200 centals (24,760 short tons) exported in the same eleven months of the year 1933-34.

*British West Indies:* In Antigua and St. Kitts crop conditions were good in August, but in September the lack of rain was causing some anxiety. In St. Lucia the crop was very promising

*Jamaica:* Weather conditions in August and September were favourable for the sugar canes.

*Trinidad:* According to the most recent estimate, production of cane sugar in 1934-1935 was about 2,638,000 centals (132,000 short tons) against 2,360,000 (118,000) in 1933-34 and 2,180,000 (109,000) on the average of the five years ending 1932-33, percentages, 111.8 and 121.0. Weather conditions in August and September were favourable for the canes of the 1935-36 crop.

*Taiwan:* The condition of the cane to be cut this autumn was fairly satisfactory. Crop condition in plantations was average.

*India:* In the United Provinces general rain fell in September but toward the end of the month it decreased and the beginning of October was dry. Crop condition was good.

Light to moderate rain fell in the Punjab in September, while the first week of October was dry save for light rains in Gurgaon and Rawalpindi. Crop condition in irrigated areas was average to good.

In Bihar and Orissa rain varied considerably in both period and locality. Flooding occurred in some areas. Crop condition was fair save in Saran, where excessive rain had caused damage.

In Bengal rainfall was on the whole light to moderate in the latter half to September and first half of October. Crop condition was fair.

In Madras there was heavy rain in the middle of September and light to moderate rain subsequently. Crop condition was fair.

In Bombay the rains tended to diminish during this period. Crops were generally in good condition.

According to the second forecast, the area cultivated to sugar-cane this year is about 3,679,000 acres against the corresponding forecast of 3,445,000 in 1934-35 and 2,862,000 on the average of the corresponding forecasts of the five years ending 1933-34. Percentages: 106.8 and 128.5.

*Java and Madura (Aneta):* The drought continued in the second half of September except in a few districts and affected the distribution of irrigation waters. The effects of the drought are being felt in some of the new plantations but conditions in general are satisfactory both in these and in the old plantations which have not yet been harvested.

Some *Fusarium* attacks and the first appearance of white cochineal have been observed in the new plantations.

*Egypt:* The growth of the sugar-cane crop is progressing satisfactorily. The internodes and sugar content are developing in the early and the general cultivations. Some areas of the early cultivations are being cut for local consumption. The state of the crop is normal.

According to a preliminary forecast, area planted to sugar-cane is estimated this year at 62,000 acres, as against 62,500 last year and an average of 65,100 during the five preceding years; percentages: 99.1 and 95.1.

*Mauritius:* Conditions in August and September continued to be favourable for the standing crop. It was expected that the latest estimate of the total production would be exceeded.

*Union of South Africa:* August crop condition averaged 5 % below normal. Good rains fell during the month.

According to the most recent estimate, production of sugar in 1935-36 will be about 8,680,000 centals (434,000 short tons) against 7,175,000 (358,700) in 1934-35 and, 7,071,000 (353,600) on the average of the five years ending 1933-34. Percentages: 121.0 and 122.7

## VINES

*Germany:* Crop condition on 1 October was 2.0 against 2.1 on 1 September 1935 and 1.6 on 1 October 1934.

*Austria:* Picking began in some places at the end of September. The content of the grapes is satisfactory. A larger production than that of the last two years is expected. Crop condition of vineyards on 1 October was 1.7 as at 1 September of this year, compared with 2.3 on 1 October 1934.

*Bulgaria:* Condition of vineyards in September was generally good except in a few places which were affected by the drought.

According to the most recent estimate, the area bearing vines this year is about 237,000 acres against 229,000 in 1934 and 203,000 on the average of the five years ending 1933; percentages 103.7 and 116.8. The corresponding production of grapes is estimated at about 12,250,000 centals against 10,013,000 and 7,867,000; percentages, 122.3 and 155.7.

*Spain:* Picking of grapes began in all parts at the end of September but was impeded in some places by rain or heat.

Yields in some areas are rather poor and prospects in general at the beginning of October were not as good as they were a month earlier.

*France:* Picking of grapes is nearly over, weather having been generally favourable. A decline in wine production is confirmed in the south-west and in most of the Loire basin.

*Hungary:* In the second half of September the weather favoured ripening. At the beginning of October the vintage had begun everywhere. Musts obtained in some places from premature vintage due to the danger of rot are rather weak.

*Romania:* At the beginning of October the vineyards had a good appearance and weather was favourable.

### Vines.

COUNTRIES	AREA					PRODUCTION OF WINE									
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935			
				1934	Average							1934	Average		
														= 100	= 100
1,000 acres					1,000 Imperial gallons				1,000 Amer. gallons						
Bulgaria s)	237	229	203	103.7	116.8	...	58,020	44,028	...	69,677	52,874	...	...		
France s) 1).	3,999	4,008	3,986	99.8	100.3	...	1,718,979	1,193,676	...	2,064,339	1,433,497	...	...		
Italy (u)	2,415	2,413	2,204	100.1	109.5	...	672,008	845,416	...	807,021	1,015,268	...	...		
Luxemb s)	7,274	7,288	7,828	99.8	92.9	...	...	...	...	...	...	...	...		
Switzerland s)	3	3	3	100.0	85.5	1,320	3,073	1,454	1,585	3,690	1,746	42.9	90.8		
Czechoslov.	33	33	32	100.0	102.9	21,998	18,698	18,868	26,417	22,455	13,051	117.6	202.4		
	58	52	46	111.1	126.4	..	7,228	8,471	...	8,680	10,173	.	...		
Algeria s).	965	955	759	101.0	127.2	406,955	484,887	340,765	488,716	582,306	409,228	83.9	119.4		

u) Unmixed crop — m) Mixed crop — s) Area, bearing. — 1) Estimate on 1st. June, including vines which are pulled-up in the year (163,000 acres in 1934, 272,000 acres in 1933, 198,000 acres in 1932)

*Palestine:* The vintage season in the Zikhron area is over and results were better than were expected at the beginning of the year.

*Algeria:* Gathering of grapes and wine-making were in progress at the beginning of October in Oran where drought and the sirocco have caused serious damage in vineyards. The new wines show a lower alcoholic content than those of last year. In Alger picking was finished in the coastal areas and in Cheliff. The crop is 25 to 30 % smaller than that of last year. Picking of table grapes continues in the higher vineyards of



**Miliana.** The quality of the grapes gathered is somewhat unsatisfactory. In Constantine the gathering was nearly finished at the beginning of October but was later than usual. Yields are below those of last year.

**Tunisia:** Gathering of grapes was finished in all parts by the beginning of October. The yield is good on the whole. Temperatures were below normal and wine-making was carried out in good conditions.

## OLIVES

**Italy:** Notwithstanding some shedding and fly attacks, olives are in good condition. Production is considered poor in North and Central Italy, good in Campania and Apulia and good or mediocre in Calabria, Sicily and Sardinia.

**Palestine:** Olive picking is in progress. The crop is smaller than last year in the south but about normal in the north. Much damage was caused to the early ripening and pickling olive varieties by the olive fruit fly. Yields are adversely affected by approximately 60 % owing to hot easterly winds at the time of setting of the fruit.

**Algeria:** Picking of olives for preserves is in progress in Oran. A smaller crop than last year's is expected owing to drought and the sirocco. In Kabylia in the *département* of Alger the olive crop appears to be only half as large as that of last year which was plentiful in many districts. A good yield, however, is anticipated in Constantine. The following estimates are available for all Algeria: *Olives for preserving*, 165,000 centals compared with 213,700 centals last year and an average of 276,500 centals in the preceding five years; percentages, 77.4 % and 59.8 %. *Olives for oil*, 2,400,000 centals against 1,586,800 centals and 3,417,100 centals; percentages, 152.8 and 71.0 %. *Olive oil*, 302,900 centals against 183,200 centals and 441,700 centals; percentages, 165.3 % and 68.6 %.

**Tunisia:** The rains of September were favourable to the growth of olives which are in good condition and which promise a satisfactory yield except in the 4th. region where shedding and *dacus* have caused considerable damage.

## COTTON

**Greece:** The sudden drop in temperature and the wet weather hindered the opening and ripening of the bolls during September. Some slight worm attacks were notified in Macedonia and Argos.

The expected production, according to the condition of the crops at the end of the month is as follows.

	centals	bales of 478 lb.
Thrace-Macedonia . . . . .	85,700	18,000
Thessaly . . . . .	17,700	3,700
Central Greece . . . . .	168,600	35,200
Peloponnesus and Islands . . . . .	25,400	5,300
Totals . . . . .	297,400	62,200

U. S. S. R.: Cotton picking this year began about two weeks earlier than last year and by 5 October 15,016,000 centals (3,141,000 bales) of unginned cotton had been picked, that is, about 45 % of the amount stipulated in the Plan. The chief cotton growing regions, Uzbekistan, Turkmenistan and Tajikistan, have gathered more than half their cotton, while in the regions which have only recently begun to cultivate cotton only about a quarter of the work has been accomplished.

The amount of cotton picked this year up to 5 October is about four times as large as that picked up to the same date last year. By 10 October the picking accomplished amounted to 52.7 % of the Plan

### Cotton.

COUNTRIES	AREA						PRODUCTION OF GINNED COTTON								
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	% 1935/36			
				1934/ 1935	Average							1934/ 1935	Average	1934/ 1935	Average
1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb			= 100	= 100			
Bulgaria	89	48	22	185.7	400.8	186	85	28	39	18	6	218.3	666.8		
Greece 1) . . . . .	2) 133	91	54	146.2	246.9	2) 297	173	95	2) 62	36	20	172.0	314.6		
U. S. S. R. . . . .	4,821	4,787	4,447	100.7	108.4	10,730	7,996	8,116	2,245	1,673	6,698	134.2	132.2		
Brazil North States	...	1,729	1,366	...	...	5,192	3,572	1,971	1,086	747	412	145.4	263.4		
United States 5) . .	28,652	26,987	38,024	106.2	75.4	54,798	46,060	68,737	11,464	9,636	14,380	119.0	79.7		
Mexico . . . . .	569	418	364	136.1	156.5	4) 996	1,066	952	4) 208	223	199	93.4	104.6		
China . . . . .	4) 5,498	6,828	5,484	80.5	100.3	12,790	14,930	10,842	2,676	3,123	2,268	85.7	118.0		
Chosen . . . . .	514	474	445	108.3	115.5	...	650	636	...	136	133	...	...		
India 6) . . . . .	22,118	20,390	19,844	108.5	111.5	...	...	...	...	...	...	...	...		
Turkey . . . . .	...	486	432	...	...	2) 970	775	406	2) 203	162	85	125.2	239.0		
Egypt . . . . .	1,733	1,798	1,766	96.4	98.1	8,177	7,483	7,269	1,711	1,566	1,521	109.3	112.5		

1) Area sown — 2) Unofficial estimate — 3) Estimate of the Plan — 4) First estimate. — 5) See Summary of Government's Cotton Reports. — 6) Second estimate

*Argentina* The National Cotton Commission has recommended farmers in the north of the country to expand their cotton crops in the present year, giving preference, according to zone, to the *Carolina Foster*, *Lightning Express*, *Acaba* and *Dorango Long Staple* varieties. The Commission undertakes to purchase the product at a price based on the market quotations

*United States:* In the South-eastern States the heavy rains and storms of the first part of September were about offset by favourable picking and ginning weather during the latter part of the month. In the Mississippi Valley States conditions were about average during September and the prospect changed upward slightly. In Texas and Oklahoma the crop showed little recovery from its late start, with an increasing menace of frost damage to small bolls before these can mature. In all the more Northern States of the cotton belt, the crop is late and the percentage ginned is much behind the normal.

During the week ended 2 October, weather conditions were rather favourable in the Eastern States, but moderate to heavy rains in the western section were rather detrimental.

During the week ended 9 October, temperatures averaged near normal and the week was mostly rainless, with only light showers in the northern sections. Weather conditions were nearly ideal for picking and ginning everywhere and progress was excellent. No material damage resulted from low temperatures, though some slight damage was done to late cotton in the lowlands and locally in the interior parts of the eastern belt. In Texas the weather was cool in the eastern third but warm elsewhere, and the amount of rain was inconsequential.

Though there was some advance in condition, it ranged from only fair to good and in some sections poor. Oklahoma made fair to good progress, the crop condition being mostly good in the southern third and poor to fair elsewhere. While good progress was made in picking and ginning operations were a fortnight late.

During the week ended 16 October, temperatures were above normal and rainfall in material amounts was confined largely to the north-western portion; picking and ginning made good progress in most sections.

During the week ended 23 October picking and ginning made good progress in the eastern half of the belt.

*Summary of Government's Cotton Reports, by cotton seasons:*

	Provisional estimates for dates indicated 1935/36	Final estimates		Percent. 1935/36	
		1934/35	Average 1929/30 to 1933/34	1934/35 = 100	Average = 100
<i>Report referred to 1 July</i>					
Area in cultivation (acres). . . . .	24,166,000	27,883,000	40,860,000	104.6	71.4
<i>Report referred to 1 August:</i>					
Area left for harvest (acres) . . . . . (1)	28,480,000	(2) 26,987,000	(3) 38,024,000	105.5	74.9
Crop condition (per cent of normal) . . . . .	73.6	60.4	(4) 68.7	—	—
Production (5). . . . .	11,798,000	9,636,000	14,380,000	122.4	82.0
Yield of lint per acre, in lb. . . . .	198.3	170.9	(4) 177.1	116.0	112.0
Cotton ginned to 1 August (6). . . . .	94,241	99,787	82,957	94.4	113.6
Cotton ginned to 16 August (6) . . . . .	316,930	354,724	335,834	89.3	94.4
<i>Report referred to 1 September:</i>					
Area left for harvest (acres) . . . . . (7)	28,652,000	(2) 26,987,000	(3) 38,024,000	106.2	75.4
Crop condition (per cent of normal) . . . . .	64.5	53.8	(4) 59.2	—	—
Production (5) . . . . .	11,489,000	9,636,000	14,380,000	119.2	79.9
Yield of lint per acre, in lb. . . . .	192.0	170.9	(4) 177.1	112.3	108.4
Cotton ginned to 1 September (6) . . . . .	1,133,000	1,402,835	1,255,081	80.7	90.3
Cotton ginned to 16 September (6) . . . . .	2,318,000	3,129,794	2,985,637	74.1	77.7
<i>Report referred to 1 October:</i>					
Crop condition (per cent of normal). . . . .	64.0	55.9	(4) 57.9	—	—
Production (5) . . . . .	11,464,000	9,636,000	14,380,000	119.0	79.7
Yield of lint per acre, in lb. . . . .	191.5	170.9	(4) 177.1	112.0	108.1
Cotton ginned to 1 October (6) . . . . .	4,230,000	4,962,384	5,672,176	85.2	74.6
Cotton ginned to 18 October (6) . . . . .	6,590,000	6,743,904	8,752,764	97.7	75.3

(1) Area in cultivation on 1 July, less the ten-year, 1925-34, average abandonment, about 2.4 per cent. — (2) Area actually harvested; per cent of abandonment about 3.2. — (3) Area actually harvested; the per cent of abandonment, about 1.7, does not take into account about 10 ½ million acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts. — (4) Ten-year, 1924-33, average. — (5) In bales of 478 lb. net weight and exclusive of linters. — (6) In running bales, counting round bales as half-bales and exclusive of linters. — (7) Area in cultivation on 1 July, less 1.8 per cent. of abandonment.

*Mexico:* Excessive rain and disease have caused some damage to the cotton crop in the chief growing areas of the country.

*Haiti:* Cotton exports during August were only 1,800 centals (370 bales) or slightly less than those of the same month of the year 1933-34. Total exports in the period October-August of the present year amount to 134,700 centals (28,180 bales) against 116,600 centals (24,400 bales) in the same period in 1933-34.

*India:* The Central Provinces had cloudy or rainy weather up to the end of September but subsequently clear and warm. The heavy rain in the first half of the period caused some damage.

In Bombay also the rains tended to diminish. Picking began in mid-September on the Deccan canals. Crops were generally in good condition. In Sind, where picking was also proceeding, there was little or no rain.

In Madras there was heavy rain in the middle of September and light to moderate rain subsequently. Crop condition was fair.

Light to moderate rain fell in the Punjab in September, while the first week of October was dry save for light rains in Gurgaon and Rawalpindi. The crop was affected by root-rot in Shahpur and by tela in Lahore. According to a telegram received on 19 October, the area sown was 2,912,000 acres an increase of 12.9 % on the corresponding estimate of 2,579,000 in 1934-35 and one of 27.17 % on the average of 2,290,600 for the five years ending 1933-34. Crop condition was 95 % of normal.

*Egypt:* Cotton ginned up to the end of September, in bales of 478 lb. net weight:

Varieties	1935	1934	1933	1932	1931	1930	1929
Sakellaridis . . . . .	6,940	8,070	1,080	5,730	4,230	8,430	14,320
Other varieties above							
I 3/8" . . . . .	20,720	22,710	3,200	4,570	71,440	146,650	156,450
I 1/2" . . . . .	2,490	2,880	1,090	3,130			
I 1/8" . . . . .	179,240	197,960	128,700	73,070			
Total . . . . .	206,390	221,620	134,070	80,500	75,670	155,080	170,770
Scarto (linters) . . . . .	2,690	3,120	1,170	1,270	1,330	2,060	2,260
Total production (including Scarto) . . . . .	*) 1,710,600	1,565,600	1,776,900	1,027,000	1,317,300	1,714,900	1,767,800

\*) First estimate

According to the first estimate, total production is distributed as follows, in thousands of bales of 478 lb net weight:

Varieties	1935 (1st estimate)	1934	1933 (Final estimates)	1932
Long staple: above 1 3/8 . . . . .	545	460	442	364
(Including Sakel) . . . . .	(199)	(208)	(239)	(252)
Long-medium staple: above 1 1/2 . . . . .	47	44	76	73
Medium staple: above 1 1/8 . . . . .	1,084	1,028	1,225	567
Scarto (linters) . . . . .	35	34	34	23
Total . . . . .	1,711	1,566	1,777	1,027

*Nigeria:* It was reported in September that a larger area than last year's was under cotton cultivation in the North. The crop was making good progress.

*Nyasaland:* The cold spell at the end of July caused but little damage. It was reported in September that the quality of the cotton was good on the whole. The revised estimate of the 1935-36 production of ginned cotton was 72,000 centals (15,000 bales of 478 lb.) as compared with 38,900 (8,100) in 1934-35 and 23,700 (5,000) on the average 1929-30 to 1933-34. Percentages: 185.2 and 303.9.

*Uganda:* Dry weather continued to prevail in August delaying the planting of the main crop and affecting adversely the July plantings. Good progress was made, however, by the cotton planted before July. An improvement in weather conditions was reported at the end of the month and no substantial decrease was anticipated in the total acreage planted as compared with last year. Spacing and re-sowing of blanks improved satisfactorily in most areas. The acreage planted to the end of August amounted at 986,700 acres as against 1,181,300 at the same date last year. Percentage: 83.5.

*Tanganyika:* The Mwanza cotton sold to the end of September amounted at about 144,000 centals (30,100 bales of 478 lb.). The season was almost finished.

## LINSEED

The following is an outline of the world linseed situation this year as it appears from the statistics and information now available.

For Europe, the preliminary estimates of the harvests now to hand show that in total, the U. S. S. R. excluded, production is appreciably larger than that of last year and, with the exception of Belgium where drought was experienced, and Austria, also larger than the average outturn of the five preceding years. The good results of this year's crops are partly the result of the expansion in the cultivated area, which was this year larger than last year and larger also than the average, and partly of the generally favourable weather conditions experienced in nearly all parts. Rain and hailstorms were much less frequent than usual and growth, harvesting and threshing took place in normal conditions. The chief producing countries in Europe which have not yet estimated their crops are Poland, France, Italy and the Netherlands. In Poland crop condition on 15 August was better than it was at this date a year ago and gave promise of a plentiful production for this year. The estimate of the area made in France on 1 June showed a slight decline in the crop compared with last year but it is slightly larger than the average. The abnormally cold weather experienced in May impeded the sprouting of flax but the rise in temperature at the beginning of June, the helpful rains of the same period and the very favourable weather conditions which were experienced during the harvest brought about an appreciable improvement in the condition of the crop with the result that yields may now be expected to have exceeded those of last year. In Italy the crop reveals an expansion compared with last year, though it is still somewhat smaller than the average, and here also a plentiful yield distinctly higher than the very low figure of last year, but one smaller than the average, is anticipated. In the Netherlands, the weather has not been very favourable for the crop and yield of seeds was below the normal. For the U. S. S. R. no estimate of this year's figure has yet been issued. The total area required by the

## Flax

COUNTRIES	†) AREA					†) PRODUCTION							
	1931	1934	Aver. 1929 to 1933	% 1935		1935	1934	Aver. 1929 to 1933	1935	1934	Aver. 1929 to 1933	% 1935	
	—	—	—	1935/36		—	—	—	—	—	—	1935/36	
	1935/36	1934/35	1929/30 to 1933/34	1934 1934/35	Average	1935/1936	1934/1935	1929/30 to 1933/34	1935/36	1934/35	1929/30 to 1933/34	1934 1934/1935	Aver. 1934/1935
	1,000 acres					1,000 centals			1,000 pounds				

## Fibre.

Germany 1) . . .	51	22	20	235.5	257.2	1,378	592 <sup>a)</sup>	343	137,778	59,210 <sup>a)</sup>	34,335	232.7	401.3
Austria 3) . . .	5	4	7	105.6	62.9	67	70	103	6,702	7,011	10,251	95.6	65.4
Belgium . . .	46	35	42	129.4	109.7	611	482	302	61,109	48,172	30,209	126.9	201.9
Bulgaria . . .	6	3	1	205.7	546.8	8	7	2	786	701	222	112.2	354.5
Estonia . . .	73	53	56	137.7	128.6	241	156	156	24,050	15,618	15,623	154.0	153.9
*Finland 4) . . .	12	11	9	101.4	129.4	...	37	28	...	3,664	2,799	...	...
*France . . .	56	58	54	97.2	104.8	...	323	356	...	32,334	35,596	...	...
*N. Ireland . . .	28	16	17	177.0	161.9	...	82	76	...	8,236	7,605	...	...
*Hungary . . .	8	8	—	104.0	...	27	27	—	2,674	2,666	...	100.3	—
Latvia . . .	168	114	110	146.7	152.7	587	357	335	58,662	35,671	33,510	164.5	175.1
Lithuania 4) . . .	227	150	159	151.6	143.3	792	478	514	79,184	47,794	51,360	165.7	154.2
Netherlands . . .	23	15	24	150.5	97.5	148	120	158	14,771	11,980	15,769	123.3	93.7
*Romania . . .	79	63	51	124.6	153.9	...	166	108	...	16,607	10,791	...	...
Czechoslovak . . .	33	23	27	141.3	122.8	153	122	112	15,272	12,246	11,237	124.7	135.9
*U. S. S. R. 5) . . .	5,115	5,214	5,276	98.1	97.0	...	11,685	10,582	...	1,168,454	1,058,222	...	...
Egypt . . .	5	5	3	92.8	155.2	29	32	21	2,932	3,192	2,069	91.8	141.7
TOTALS . . .	637	424	449	148.8	141.4	2,912	1,942	1,772	291,024	194,227	177,117	149.9	164.3

## Linseed.

COUNTRIES	†) AREA					†) PRODUCTION							
	1931	1934	Aver. 1929 to 1933	% 1935		1935	1934	Aver. 1929 to 1933	1935	1934	Aver. 1929 to 1933	% 1935	
	—	—	—	1935/36		—	—	—	—	—	—	1935/36	
	1935/36	1934/35	1929/30 to 1933/34	1934 1934/35	Average	1935/1936	1934/1935	1929/30 to 1933/34	1935/36	1934/35	1929/30 to 1933/34	1934 1934/1935	Aver. 1934/1935
	1,000 acres					1,000 centals			1,000 pounds				
Germany . . .	51	22	20	235.5	257.2	355	140 <sup>a)</sup>	70	634	249 <sup>a)</sup>	125	254.4	508.6
Austria . . .	3	3	4	116.1	72.0	11	12	16	20	21	29	98.1	70.8
Belgium . . .	46	35	42	129.4	109.7	204	160	212	364	286	378	127.2	96.1
Bulgaria . . .	6	3	1	205.7	546.8	26	8	5	46	14	8	320.9	546.5
*Estonia . . .	73	53	56	137.7	128.6	...	162	176	...	290	314	...	...
*Hungary . . .	31	30	—	104.6	...	164	141	—	292	251	—	116.3	—
*Italy . . .	11	11	18	104.8	61.9	...	46	99	...	82	177	...	...
Latvia . . .	168	114	110	146.7	152.7	520	334	333	928	597	594	155.5	156.1
Lithuania 4) . . .	227	150	159	151.6	143.3	862	568	638	1,539	1,014	1,140	151.7	135.0
Romania . . .	79	63	51	124.6	153.9	253	205	223	452	365	398	123.8	113.8
Czechoslovakia . . .	33	23	27	141.3	122.8	124	94	87	222	168	155	132.3	142.6
*U. S. S. R. 6) . . .	5,744	5,814	6,576	98.8	87.3	...	15,432	16,811	...	27,558	30,021	...	...
Canada . . .	215	227	463	94.8	46.4	916	510	1,450	1,636	910	2,589	179.7	63.2
United States . . .	2,138	969	2,500	220.6	85.5	7,806	2,919	7,573	14,100	5,213	13,523	270.5	104.3
India . . .	3,381	3,261	3,096	103.7	109.2	9,363	8,422	8,534	16,720	15,040	15,240	111.2	109.7
Egypt . . .	5	5	3	92.8	155.2	35	42	22	62	74	40	84.1	156.7
Eritrea . . .	5	6 <sup>a)</sup>	3	85.6	170.3	23	24 <sup>a)</sup>	19	41	43 <sup>a)</sup>	34	95.5	123.3
*Argentina . . .	6,128 <sup>a)</sup>	8,103 <sup>a)</sup>	7,499 <sup>a)</sup>	75.6	81.7	...	43,167	38,306	...	77,084	68,404	...	...
*Uruguay . . .	415	401	370	103.6	112.2	...	2,658	1,958	...	4,747	3,496	...	...
TOTALS . . .	6,357	4,881	6,479	130.1	98.1	20,588	13,438	19,182	36,761	23,994	34,253	153.2	107.3

\* Countries not included in the totals. — † The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) Production expressed in dry stalks (flax and straw). The corresponding figures in flax included in the totals are as follows: 1935 — 27,556,000 lb.; 1934 — 11,842,000 lb.; average — 6,867,000 lb. — 2) Year 1933. — 3) Production expressed in terms of air-dried stalks. — 4) Flax and hemp. — 5) "Doigunetz" variety. — 6) Total area (including that for flax). — 7) Total area, according to the Plan. — 8) Average 1931 to 1933 — 9) Area sown. — 10) Area harvested.

Plan closely approaches that of 1934 but is 12.7 % below the average of the preceding five years. The information on the course of the year suggests that conditions have been generally favourable in all parts of the country.

In the United States, the latest estimate of the crop, issued early in October, slightly reduces the previous figure but places production at a figure substantially larger (170.5 %) than the extremely poor one of last year and a little above (4.3 %) the average. The present flaxseed year in the United States was characterised by a recovery in the crop compared with last year (130.6 %) and by a much more favourable growing conditions than those of 1934. Although the area sown to flax in Canada, is smaller by 5.2 % than that of last year, the results obtained are better than those of 1934 by 79.7 % but they are still smaller (by 36.8 %) than the average, largely owing to the contraction in the area (53.6 %). The total flaxseed production of the two North American countries amounts to 8,814,000 centals (15,740,000 bushels), or 157.1 % more than the 3,428,000 centals (6,127,000 bushels) of 1934 and 2.3 % less than the average production of the five preceding years (9,034,000 centals or 16,114,000 bushels).

Indian linseed production was larger by 11.2 % than that of last year and nearly equal to the average, the increase over the latter being equivalent to the increase shown in the area over the average of the five preceding years (9.2 %). Beneficial rains fell in September in the chief flax growing areas and facilitated preparatory work and the first sowings for the next crop.

In the case of Argentina, the world's largest producer of linseed, only the first estimate of the area sown this year is as yet available and this is the lowest figure of the last ten years. The large contraction in the area this year compared with last year (24.4 %) and with the average (18.3 %) is the outcome of the exceptionally severe and prolonged drought which interfered with the work of soil preparation and with sowings, especially in the Provinces of Santa Fé, Córdoba and Entre-Ríos. Subsequently, germination was slow and uneven in general, except in the Province of Buenos Aires where soil moisture was sufficient in nearly all parts. According to a cable dated 23 October from the Ministry of Agriculture at Buenos Aires, the rains of the first half of this month improved the condition of the crop which, however, is much later than usual. Owing to the exceptional conditions of the present flax year in Argentina, it is still very difficult to form an estimate of the probable linseed production of the country. The Argentine Government in a recent communication to the Institute confines itself to the statement that the crop this year will be smaller than last year's. This year the uncertainty regarding the crop is greater than usual owing to the additional risk involved in the delay in the crop and it is not possible to form even a very rough estimate of the total Argentine crop. Argentine production of linseed is thus strictly subject to the course of the season up to the harvest and to the possibility of grasshopper attacks. But if account is taken of the decline in the sown area compared with last year (24.4 %) and if the course of the season up to the time of the harvest is assumed to be normal and, consequently, also the area abandoned for natural reasons, production of linseed in Argentina this year may be expected to vary between 20 and 30 million centals (51 and 55 million bushels), that is to say, substantially above the outturn

of last year (43,167,000 centals or 77,084,000 bushels) and above the average (38,305,000 centals or 68,403,000 bushels).

The first estimate of the area sown to flax this year in Uruguay, which is now available, places the area slightly above that of last year and, more appreciably, above the average of the five years 1929-30 to 1933-34. Weather conditions, though not as unfavourable as those experienced in Argentina, were not very favourable for germination and there were complaints in some areas of drought grasshopper and frost damage.

No estimate has yet been issued for French Morocco, the most important producer of Africa, but, in view of the very serious damage caused by the drought in the spring, an extremely poor crop is expected.

The results and prospects of the present flax year may be summarised as follows. The crop was good in Europe, satisfactory in North America and average in India while it will be substantially smaller in Argentina and French Morocco.

## FLAX

*Irish Free State* Flax was saved and secured in good condition, but comparatively few lots were scutched up to the end of September, and it is, therefore, too early to form any reliable estimate of the yield. Yields from the lots scutched were, however, above average, and the quality of the fibre good.

*Hungary.* Quality of the fibre is average. Production of seed is poor and the seeds are generally thin.

*Argentina* The latest monthly report issued on 25 September by the Department of Rural Economy and Statistics of the Ministry of Agriculture at Buenos Aires gives the following information on the flax crops of Argentina.

Province of Buenos Aires. — In the Atlantic zone sowings were almost finished and showed an increase in area compared with last year. In the Plata River area germination was irregular owing to the scarcity of rain and to frosts. In the central and western zone the crop was good in appearance. Germination was general in the north and prospects were good.

Province of Santa Fé. — The crop was late and growth unsatisfactory and uneven owing to the drought. Grasshoppers and frosts had caused serious damage to the sowings. Prospects were not good, on the whole, in this province. Rains were needed urgently.

Province of Córdoba. — Weather in September improved the condition of the crops and growth was abnormal, especially among the early varieties.

Province of Entre-Ríos. — Flax prospects are better than those of wheat. In many places, however, there were complaints of drought and frost damage. Rains are urgently needed everywhere. The appearance of grasshoppers is notified.

Province of Santiago del Estero. — The severe drought has seriously interfered with sowings. The crop condition of the first sowings, which represent about half the total sowings of the province, was more satisfactory than that of the late sowings which are growing slowly and unevenly.

(Telegram of 23 October): Weather conditions in the second half of this month were favourable to flax and an improvement has occurred in crop condition since



the last report issued on 25 September. Crop, however, is backward and the harvest of the year 1935-36 is expected to be smaller than that of last year.

It must be remembered, with reference to this communiqué of the Argentine Government, that the intense and prolonged drought was an unfavourable factor at the time when sowings were made and that there were declines in the areas sown to flax compared with last year (24.4 %).

## HEMP

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Average				1934	Average
				= 100	= 100				= 100	= 100
1,000 acres					1,000 pounds					

### Fibre.

Austria 1) . . . . .	1	1	1	120.7	97.8	1,345	1,367	1,607	98.4	83.7
Bulgaria . . . . .	16	14	10	119.6	160.3	7,495	5,872	3,574	127.6	209.7
Italy . . . . .	165	156	166	106.0	99.8	...	133,325	153,796	...	...
Czechoslovakia . . . . .	18	18	20	100.4	90.8	10,553	13,244	11,335	79.7	93.1
U.S.S.R. . . . .	1,433	1,478	2,096	97.0	68.7	...	310,191	502,215	...	...

### Hempseed.

Austria . . . . .	2)	2)	2)	142.9	74.6	110	88	145	125.0	76.0
Bulgaria . . . . .	16	14	10	119.6	160.3	5,325	4,282	2,741	124.4	194.3
Czechoslovakia . . . . .	18	18	20	100.4	90.8	5,538	8,978	7,869	61.7	70.4

1) Production expressed in terms of air-dried stalks — 2) Area smaller than 500 acres

## HOPS

*Belgium:* Toward the end of the growing period weather was bad. Yields were between 16 and 17 centals per acre.

*Hungary.* Production is a little above average.

### Hops.

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver age				1934	Aver age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
Belgium	2	2	2	98.2	100.1	3,801	2,824	2,318	134.6	164.0
Engl. and Wales	18	18	19	99.8	92.8	...	29,008	26,544	...	...
Czechoslovakia	29	29	33	100.1	88.7	...	15,595	23,219	...	...
United States	39	37	24	106.0	165.8	47,200	41,195	29,415	114.6	160.5

## TOBACCO

*Belgium:* Yield is estimated at 13-18 centals an acre.

*Spain:* Hail caused considerable damage in the cotton plantations of Granada where more than half the total Spanish production is grown. It is thought that a loss of 40 % of the total crop will result.

*Hungary:* The unit yield is average. Leaf-size is not always satisfactory but quality is good. At the beginning of October picking and drying was proceeding.

*Italy:* Tobacco production varies according to district but, on the whole, it is thought to be below that of 1934.

## Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver- age				1934	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
*Germany 1). . . .	31	30	26	103.8	122.2	...	76,897	55,110	...	...
Bulgaria . . . . .	86	55	75	155.4	114.3	60,684	46,685	58,643	130.0	103.5
Greece . . . . .	200	181	209	110.7	95.8	92,509	92,109	115,503	100.4	80.1
Hungary . . . . .	41	41	56	101.5	73.2	41,486	40,040	72,247	103.6	57.4
*Romania . . . . .	44	25	50	180.4	88.7	...	13,020	32,942	...	...
*Czechoslovakia . .	24	25	21	94.7	112.7	...	30,165	28,180	...	...
United States . . .	1,502	1,271	1,848	118.2	81.3	1,273,000	1,046,660	1,431,450	121.7	88.9
Japan . . . . .	87	85	87	102.3	99.5	149,452	148,989	143,854	100.3	103.9
Algeria . . . . .	53	57	54	93.5	98.9	38,581	49,007	39,532	78.7	97.6
TOTALS . . . . .	1,969	1,690	2,329	117.0	84.6	1,655,712	1,423,490	1,861,229	116.4	88.9

\*) Countries not included in the totals. — 1) Production for sale — 2) Unofficial data.

*Argentina:* The area sown to tobacco in the year 1934-35 is estimated at 51,000 acres against 29,900 acres last year and an average of 32,500 acres in the preceding five years, percentages, 170.7 and 157.1. The production was 51,489,000 lb. compared with 22,300,000 lb and 27,670,000 lb; percentages, 230.9 and 186.1. More than half the crop (29,280,000 lb) was grown in the Province of Corrientes which is followed at some distance by the National Territory of Misiones (14,370,000 lb), the Province of Salta (6,220,000 lb) and other regions of smaller importance.

*Mexico:* The tobacco crop in the chief producing areas is plentiful this year.

*Palestine:* The final stages of the picking of the tobacco crop are in progress. Climatic conditions have been most favourable for drying. The crop is fair to average.

*Turkey:* At the beginning of the tobacco season there was a tendency everywhere to increase the crop substantially, but, owing to the bad weather which prevailed during the period of transplantation, this work was impeded in a number of districts. Moreover, the drought which was rather severe, further reduced the harvest prospects and it now appears that the crop will fall short of the previous forecasts.

*Algeria:* Harvesting of tobacco is practically finished in Constantine but drying of leaves was not making good progress at the beginning of October owing to the wet weather; yields are below average.

In Kabylia in the *département* of Alger all the tobacco crop has been gathered. Outturn is half as large as last year's.

*Nyasaland:* In September work had begun in the tobacco nurseries and prospects for the coming season were better than those of last year at the same date.

*Tanganyika:* The amount of tobacco to be exported this season was estimated in August at 11,000,000 lb.

## OTHER PRODUCTS

### Cacao

*Brazil:* According to the Instituto de Cacau da Bahia the excessively rainy weather was reflected in the poor quality of the first cacao shipped. The badly fermented and insufficiently dried beans suffered considerably during transit by sea. In the second half of September, however, conditions improved. Arrivals from the coastal zone to Ilheus were delayed in mid-September by an obstruction of the bar. It appeared likely that the crop would be slightly larger than that of last season.

*Mexico:* This year's production of cacao was poor owing to the damage caused by the winter drought and the low spring temperatures.

*Trinidad:* In September it was reported that the coming cacao crop would be late and that picking would not begin until November or December.

*Gold Coast and British Togoland: Minor crop.* — By the end of August it was estimated that about 14 million lb. of minor crop beans had been marketed while 4 million lb. remained in farmers' hands. The crop in all areas and especially in the Central Province was small.

*Major crop. — Ashanti.* Conditions were favourable for growth and a general freedom from disease was reported. By the end of August flowering had already finished. 25 % of the crop was expected to ripen by the end of September and little movement was anticipated before mid-October. The size of the crop was not thought to differ greatly from that of last year.

*Western Province.* — The crop in the more remote areas promised to be rather better than last season whilst nearer Dunkwa lower yields were anticipated. 30% was expected to be ripe by the end of September.

*Central Province.* — It was reported that the crop would come in early and the absence of flowers and paucity of very small pods indicated an early finish, particularly in the Western Akim area where the crop was small. On the whole the crop was expected to be somewhat below last year's.

*Eastern Province.* — Considerable variations existed in this Province and yields were expected to be below last season's.

*British Togoland.* — The crop was reported to be late. Only 10 % was expected to be ripe by the end of September.

The 1935-36 major crops in Gold Coast and British Togoland was estimated at 526 million lb.

*Total crop.* — In August the average size of the beans inspected was 131.7 per 14 cubic inches or 111.2 per 4 ounces, while measured in millimetres the average was  $22.4 \times 12.3 \times 6.9$ .

The crop movement was as follows:

	August 1935	October 1934 to August 1935	August 1934	October 1933 to August 1934
	(million pounds)			
Railway offloadings, Takoradi . . . .	7	195	1	183
Exports:				
Takoradi . . . . .	14	180	5	192
Accra . . . . .	10	227	15	203
All ports . . . . .	27	521	28	400

## Tea.

*U S. S. R.:* Up to 5 October 27,051,000 lb of tea leaves had been picked, or 99.4 % of the figure in the Plan which was to be completed by 15 October. Last year 14,652,000 lb. of tea leaves had been picked by 5 October.

*India:* In August seasonable monsoon conditions prevailed in North India and prospects were fairly good, while in South India the weather had been favourable for growth and immediate prospects were good.

Up to the end of August outturn in North India was 6,891,200 lb less than the corresponding figure of last year but that in South India was 5 36 % ahead of the figure at the same date last year

*Nyasaland.* Towards the end of September the local tea factories were about to start operations on the new crop.

## Coffee.

*Brazil:* According to the National Coffee Department, the total destroyed up to 31 August 1935 was 46,595,000 centals, including about 90,400 centals in August.

*Haiti:* Exports of coffee during August amounted to 12,100 centals against 21,600 centals in August 1934. Exports for the first eleven months of the present year are 400,600 centals against 730,300 centals during the same period in 1933-34, a decrease of 44.4 % owing to the unusually poor crop of last year. It is confirmed that the production of coffee in 1935-36 will be one of the largest obtained for many years

*Kenya:* In September the coffee crop was regarded as satisfactory.

## Groundnuts.

*India:* According to the second forecast, the area cultivated to groundnuts this year is about 4,748,000 acres against the corresponding forecast of 5,094,000 in 1934 and 4,700,000 on the average of the corresponding forecasts of the five years ending 1933. Percentages: 93.2 and 101.0.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning groundnut area:—

	1935	1934
	acres	
Area harvested in August . . . . .	33,100	36,100
Area harvested from 1 January to 31 August .	310,400	324,000
Area of standing crop at end of August . . . .	159,100	175,000

*Egypt:* Fars and grains of the groundnut crop are forming satisfactorily. Maturity is in progress in early cultivations. Harvesting is expected to start in the beginning of October. The condition of the crop is satisfactory.

According to a preliminary forecast, area planted to ground-nuts is estimated this year at 22,400 acres, as against 22,000 last year and an average of 23,000 during the five preceding years; percentages- 98.1 and 97.6.

*Nigeria:* In September weather conditions were favourable for the new season's groundnut crop. Notwithstanding the decrease verified in the area under crop as compared with last year, a satisfactory production was expected.

## Colza and sesame.

*Austria:* Sowing of winter colza was completed by the beginning of October.

*Bulgaria:* According to the most recent estimate, area cultivated to rapeseed this year is about 54,900 acres against 38,550 in 1934 and 13,900 on the average of the five years ending 1933 percentages, 142.3 and 395.1. The corresponding production is estimated at about 481,600 centals (963,000 bushels) against 183,100 (366,200) and 119,600 (239,100); percentages, 263.0 and 402.7.

The area cultivated to sesamum this year is about 17,000 acres against 25,100 in 1934 and 20,800 on the average of the five years ending 1933, percentages, 67.6 and 81.6. The corresponding production is estimated at about 33,900 centals (1,700 short tons) against 62,300 (3,100) and 64,100 (3,200), percentages, 54.4 and 52.9.

*Hungary:* Winter colza germinated well and at the beginning of October showed good development.

*India:* According to the second forecast, the area cultivated to sesame this year is about 4,040,000 acres against the corresponding forecast of 4,096,000 in 1934 and 3,728,000 in the average of the corresponding forecasts of the five years ending 1933. Percentages: 98.6 and 108.4.

*Palestine:* The sesame yield in general has been very good taking into consideration the adverse weather conditions of early summer. Drying of sesame remains to be completed in some of the plain villages.

*Egypt:* According to a preliminary estimate, the area under sesame this year is 18,700 acres, as against 21,400 last year and an average of 16,300 during the five preceding years, percentages 87.4 % and 115.1 %

## Sericulture.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver. age				1934	Aver- age
1,000 ounces			= 100	= 100	1,000 pounds			= 100	= 100	
Bulgaria . . . . .	24	28	33	87.5	73.4	2,646	3,053	3,713	86.7	71.3
Italy . . . . .	...	418	708	.	...	39,242	63,619	94,035	61.7	41.7
Chosen s). . . . .	215	227	218	94.8	98.6	31,527	33,566	28,145	93.9	112.0
Japan . . . . . { s)	2,448	2,732	2,784	89.6	87.9	365,513	400,062	422,918	91.4	86.4
Japan . . . . . { f)	2,861	2,944	3,363	97.2	85.1	289,705	320,851	397,772	90.3	72.8
TOTALS . . . . .	—	—	—	—	—	728,633	821,151	946,583	88.7	77.0

s) Spring cocoons. — f) Summer-autumn cocoons

## FODDER CROPS

*Germany:* The rains of September were of benefit to fodder crops. Growth, which had been held up by the drought of the summer months, was resumed.

The following are the figures of production of the chief fodder crops in 1935 compared with the corresponding statistics of 1934 and the average of the preceding five years:—

Crop <sup>a</sup>		1935	1934	Average 1929-33	% 1935	
					1934 = 100	Average = 100
Clover . . . . .	(ooo centals)	163,097	156,221	200,947	104.4	81.2
	(ooo sh. tons)	8,155	7,811	10,047		
Alfalfa . . . . .	(ooo centals)	51,011	35,523	42,573	143.6	119.8
	(ooo sh. tons)	2,550	1,776	2,129		
Mangels . . . . .	(ooo centals)	661,477	745,269	659,798	88.8	100.3
	(ooo sh. tons)	33,073	37,263	32,989		
Permanent meadows	(ooo centals)	515,876	390,798	528,691	132.0	97.6
	(ooo sh. tons)	25,793	19,540	26,434		
of which.						
Irrigated meadows .	(ooo centals)	33,676	37,795	44,135	89.1	76.3
	(ooo sh. tons)	1,684	1,890	2,207		
Unirrigated meadows	(ooo centals)	482,200	353,003	484,556	136.6	99.5
	(ooo sh. tons)	24,109	17,650	24,227		

*Austria:* Mangels improved slightly in the well watered mountainous areas but those in the valleys leave much to be desired. The roots in some places are only half the normal size

There was a noticeable improvement in the growth of clover during the second half of September. The clover remaining to be cut is used solely as green fodder owing to the scarcity of fodder experienced in all parts of the country.

The second cut in permanent meadows was very poor, particularly in eastern districts. Alpine pastures were abandoned during the last week of September.

*Belgium:* The sowings of clover and fodder crops are good in appearance.

*Estonia:* The continuous rain has impeded haymaking and damaged some of the hay. Quality is not as good as last year's.

*Irish Free State:* Reports from all parts of the country indicate that the year was exceptionally favourable for hay, and the crop proved the most satisfactory obtained for some years. The yield was up to the average and the quality exceptionally good.

All root crops benefited by the September rains and made good progress during the month. Mangels, although in many cases an uneven crop, will probably bulk up to the average. Turnips are not so satisfactory, and it is feared that yields will be below average.

*France:* Meadows and grass are in very good condition and it will be possible to avoid drawing upon natural and prepared feeding stuff.

*Great Britain and Northern Ireland:* The heavy rain of September benefited 100t crops and pastures. Pastures improved considerably during the month and in most areas they appear quite fresh and afford a good bite to stock. Mangels, which in some districts are reported to be patchy, made good progress during the wet spell and there are now prospects of a fair crop. Turnips and swedes also made good progress but there are many patchy fields and in some places crops are practically failures. Production of these two crops in England and Wales is estimated as follows: mangels, 96,680,000 centals (4,834,000 short tons) against 106,020,000 centals (5,301,000 short tons) in 1934

*The condition of Fodder Crops.*

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 October 1935			1 September 1935			1 October 1934		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
<b>CLOVER:</b>									
Germany . . . . .	—	—	3.1	—	—	3.5	—	—	3.2
Austria 1) . . . . .	—	—	3.1	—	—	3.3	2.2	—	—
Netherlands 1) . . . . .	—	—	2) 60	—	—	2) 56	—	—	2) 59
<b>ALFALFA:</b>									
Germany . . . . .	2.8	—	—	—	—	3.2	—	—	3.1
Austria . . . . .	—	—	3.4	—	—	3.5	2.3	—	—
<b>MANGELS:</b>									
Germany . . . . .	2.9	—	—	—	—	3.2	2.7	—	—
Austria . . . . .	—	3.0	—	—	3.0	—	2.1	—	—
Finland 3) . . . . .	—	f)	—	—	f)	—	—	f)	—
Netherlands . . . . .	—	—	2) 65	—	—	2) 62	—	—	2) 64
<b>TEMPORARY MEADOWS:</b>									
Austria 4) . . . . .	—	—	3.2	—	—	3.2	2.2	—	—
Finland . . . . .	—	f)	—	e) f)	—	—	—	f)	—
Sweden . . . . .	3.3	—	—	3.3	—	—	—	—	—
<b>PERMANENT MEADOWS:</b>									
Germany:									
Irrigated meadows . . . . .	2.8	—	—	—	—	3.1	2.8	—	—
other meadows . . . . .	—	—	3.2	—	—	3.6	—	—	3.3
Austria . . . . .	—	—	3.3	—	—	3.4	2.1	—	—
Finland . . . . .	—	f)	—	—	f)	—	—	—	f) g)
Sweden 5) . . . . .	3.3	—	—	3.3	—	—	—	—	—
<b>PASTURES:</b>									
Germany . . . . .	—	—	3.2	—	—	3.6	—	—	—
Austria . . . . .	—	3.0	—	2.9	—	—	2.3	—	—
Netherlands . . . . .	—	—	2) 57	—	—	2) 52	—	—	2) 59

a) Above the average. — b) Average. — c) Below the average. — d) Excellent. — e) Good. — f) Average. — g) Bad. — †) See explanation of the various systems on page 775. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Turnips. — 4) Klee grass. — 5) Meadows for hay.



and an average of 108,080,000 centals (5,404,000 short tons) in the five years 1929-33; percentages, 91.2 and 89.4, turnips and swedes, 105,860,000 centals (5,293,000 short tons) against 104,290,000 (5,215,000) and 116,216,000 (5,811,000); percentages, 101.5 and 91.5.

*Hungary* Mangles were growing well at the beginning of October. An average production was expected.

The third and fourth cuts of clover and alfalfa have yielded satisfactorily. Production of seed is poor. Production of *mohar* and maize for green fodder is generally average. The second cut in permanent meadows gave good results in some places, but, on the whole, the yield is below average. Pastures improved after the rains of the beginning of October and still afford a good bite for animals.

*Italy*: Growth in permanent meadows and pastures improved and the last cut in temporary meadows was fairly good.

On the whole, however, fodder production as the end of September was thought to be insufficient to cover the requirements for live stock.

*Norway* The area and production of the various fodder crops in 1935 and 1934 and the averages of the preceding five years are as follows

<i>Area</i>							
	1935	1934	Average 1929-33		% 1935		
					1934	Aver	
					100	= 100	
	(thousands of acres)						
Permanent meadows	395	406	473		97.4	83.6	
Temporary meadows	1,260	1,654	1,236		76.2	101.9	
Swedes . . . . .	34	35	34		96.8	98.7	
Kohl-rabi . . . . .	13	12	10		105.5	124.8	
<i>Production</i>							
	(000 centals)			(000 short tons)			% 1935
	1935	1934	Average 1929-33	1935	1934	Average 1929-33	1934 = 100
							Average = 100
Permanent meadows	9,193	8,816	9,528	459.6	440.8	476.4	104.3
Temporary meadows	47,685	57,155	42,926	2,384.2	2,857.7	2,146.3	83.4
Swedes . . . . .	10,774	12,114	11,848	538.7	605.7	592.4	88.9
Kohl-rabi . . . . .	3,731	3,810	3,174	186.5	190.5	158.7	97.9

*Netherlands* Crop condition of mangels and fodder carrots in September varied from good to fairly good. Meadows and pastures recovered as a result of the rains of September but weather was too cold for even growth. Crop condition of red and white clover was good. The second cutting of alfalfa and red clover gave satisfactory yields but quality deteriorated owing to excessive rain and consequently the hay was fed to animals before it was dry.

*Romania:* At the beginning of October condition of permanent meadows and pastures was rather unsatisfactory.

*Sweden:* The aftermath in temporary meadows was poor and pastures yielded little feed for animals owing to the late arrival of rains. Fodder roots improved in condition after the rain.

Hay is good in quality.

*Argentina* (Telegram of 23 October): Crop condition of fodder cereals is mediocre. Pastures are in poor condition but the health of animals continues to be good.

*Canada:* The following are the figures of the areas and production of certain fodder crops in 1935 with comparative statistics for 1934 and the average of the five years 1929-33

			% 1935		
	1935	1934	Average 1929-33	1934 = 100	Average = 100
<i>Area</i> (thousands of acres)					
Turnips . . . . .	185	187	187	98.7	99.1
Fodder maize . . . . .	480	497	386	96.6	124.4
Alfalfa . . . . .	764	679	700	112.5	109.2
<i>Production</i>					
Turnips . . . . .	(000 centals)	34,700	40,538	35,814	85.6
	(000 sh tons)	1,735	2,027	1,791	96.9
Fodder maize . . . . .	(000 centals)	87,020	76,300	62,648	114.0
	(000 sh tons)	4,351	3,815	3,132	138.9
Alfalfa . . . . .	(000 centals)	43,020	26,562	33,115	162.0
	(000 sh tons)	2,151	1,328	1,656	120.9

*Palestine* Irrigated maize is still being cut and fed to cattle. As a direct outcome of departmental propaganda, appreciable areas are being sown with *berسيم* and demands for seed are numerous

*Egypt* Preparation of the land for early sowing of *berسيم* has started. Some scattered areas have already been sown since the beginning of the month in most of the provinces. The conditions of germination and growth are satisfactory

## LIVESTOCK AND DERIVATIVES

### Pig population in Germany.

In the following table are given the results of the intermediate census of pigs in Germany on 4 September with comparative data for the three preceding years and the data for the main censuses at the beginning of December and other intermediate censuses.

*Numbers of pigs in Germany (I).*  
(thousands)

CLASSIFICATION BY SEX AND AGE	4 Sept 1935	4 June 1935	5 March 1935	5 Dec 1934	4 Sept 1934	4 June 1934	5 March 1934	5 Dec 1933	7 June 1933	3 March 1933	1 Dec 1932	1 Sept 1932	1 June 1932
<i>Totals . . . .</i>	22,684	20,042	20,225	23 170	25 047	22,368	22,010	23,890	21,174	20,238	22,859	24,176	21,289
<i>Sucking pigs under 8 weeks old . .</i>	5,852	4,556	4 921	4,512	6 348	5,283	5,715	5,126	5,139	5,153	4,834	6,326	5,501
<i>Young pigs from 8 weeks to 6 months old .</i>	9,684	9,523	9,574	10 052	10 595	10,436	10,022	10,353	9,752	9,379	9,884	10,341	9,832
<i>Pigs from 6 months to 1 year old</i>	5 268	4,259	3 993	6 333	6 072	4,787	4 440	5,984	4,450	3,966	5,812	5,435	4,110
<i>Of which.</i>													
Boars for service	63	46	46	45	42	44	48	49	46	46	49	46	46
Sows for breed- ing (total) .	529	554	554	452	471	547	561	549	653	528	485	517	608
Sows covered .	(288)	(355)	(313)	(244)	(229)	(338)	(327)	(306)	(422)	(316)	(259)	(255)	(374)
Other swine .	4 676	3,659	3 393	5,836	5,559	4,196	3,831	5,386	3,751	3,392	5,278	4,872	3,456
<i>Pigs 1 year old and over . . . .</i>	1,880	1,704	1,737	2 273	2 033	1,862	1 833	2,427	1,832	1,741	2,329	2,074	1,847
<i>Of which</i>													
Boars for service	68	66	57	61	72	71	66	62	72	66	61	75	73
Sows for breed- ing (total) .	1 410	1 361	1 236	1 329	1 483	1 519	1,433	1,466	1,511	1,381	1,384	1,559	1,534
Sows covered	(774)	(866)	(724)	(823)	(768)	(949)	(841)	(923)	(978)	(832)	(851)	(832)	(938)
Other swine	402	277	444	883	478	272	334	899	249	294	884	440	240

1) Excluding the Saar territory

**Pig population in Denmark.**

(Thousands)

CLASSIFICATION	1935						1934				
	24 August	13 July	25 May	13 April	1st March	15 January	1st Dec	15 October	1st Sept	16 July	
Boars for breeding	21	20	20	20	20	19	20	20	21	21	
Sows in farrow for first time	75	87	83	87	89	72	48	29	40	66	
Other sows in farrow	184	188	172	154	166	181	190	187	180	165	
Sows in milk	90	78	88	98	81	77	74	82	78	89	
Sows not yet covered (and not for slaughter)	25	25	25	22	19	19	21	25	29	24	
Sows for slaughter	9	11	12	12	14	9	11	10	10	10	
<i>Total of sows</i>	383	389	380	373	369	358	344	333	337	355	
Sucking pigs not weaned	782	670	724	813	695	668	653	720	680	776	
Young and adult pigs for slaughter											
Weaned pigs under 35 kg	742	761	797	740	738	762	745	734	790	738	
Pigs of 35 and under 60 kg	693	729	635	629	637	667	646	711	661	648	
Fat pigs of 60 kg and over	545	456	500	463	508	451	621	590	503	524	
<i>Total pigs .</i>	3,166	3,025	3,056	3,038	2,967	2,925	3,029	3,108	2,992	3,061	

**Livestock in Norway.**

Years	Horses	Cattle	Sheep	Goats	Pigs
20 June 1935 , . .	182,614	1,328,239	1,736,687	334,015	410,000
20 » 1934 , . .	181,325	1,294,497	1,697,698	337,697	550,000
20 » 1933 , . .	180,183	1,339,833	1,764,050	343,042	420,000
20 » 1932 , . .	179,068	1,341,787	1,735,932	342,525	303,966
20 » 1931 , . .	176,823	1,309,656	1,692,406	344,352	317,343
20 » 1930 , . .	176,898	1,250,672	1,588,186	333,141	338,859
20 » 1929 , . .	177,169	1,224,182	1,533,015	323,677	289,039
20 » 1928 , . .	182,401	1,220,875	1,654,448	293,258	282,709
20 » 1927 , . .	183,365	1,209,450	1,608,222	290,099	299,669
20 » 1926 , . .	183,342	1,200,279	1,595,237	290,279	303,412
20 » 1925 , . .	183,887	1,150,617	1,528,819	275,783	252,959
20 » 1924 , . .	185,935	1,114,433	1,506,850	258,767	249,022
20 » 1923 , . .	193,157	1,131,120	1,525,281	241,753	237,302

A noticeable feature in 1935 is the heavy decrease in the number of pigs, amounting to more than 25 % compared with 1934.

**Livestock in Poland.**

In the following table are given the numbers of livestock in Poland during the last seven years.

Year	Horses	Cattle	Sheep	Goats	Pigs
(thousand head)					
30 June 1935 . . . .	3,762	9,696	2,783	354	6,703
30 » 1934 . . . .	3,764	9,258	2,554	321	7,091
30 » 1933 . . . .	3,773	8,985	2,557	278	5,753
30 » 1932 . . . .	3,940	9,461	2,488	248	5,844
30 » 1931 . . . .	4,124	9,786	2,599	237	7,321
30 » 1930 . . . .	4,103	9,400	2,492	227	6,047
30 » 1929 . . . .	4,047	9,057	2,523		4,829

The data for 1935 are still provisional; there are grounds for believing, however, that the final data will not bring any appreciable modification.

The numbers of the various classes of livestock in 1935, compared with 1934, show the following changes: goats have increased by 10.5 %, sheep by

9.0 % and cattle by 4.7 %. The number of horses is practically unchanged and the total number of pigs has declined by 5.5 %.

The following changes have occurred in the various categories: the number of foals (up to 1 year) has increased by 28 %. The increase in the total numbers of cattle is largely attributable to the increase in the number of calves (up to 1 year) which amounted to 15 %. Pigs show declines in the various age groups varying between 2 and 8 %.

### Livestock in Argentina.

The following table shows the numbers of cattle and sheep in Argentina according to the official estimates of 1 July 1934 compared with those of the Census of 1 July 1930.

	1934	1930	Decrease
Cattle . . . . .	30,867,852	32,211,855	1,344,003
Sheep . . . . .	39,329,781	44,413,221	5,083,440

### Livestock in Chile.

The following table shows the numbers of cattle in Chile in 1935 compared with those of the Census of 1930.

Cows and heifers . . . . .	1,017,131	997,016
Bulls . . . . .	63,080	59,362
Oxen and steers . . . . .	950,568	911,906
Calves . . . . .	431,951	419,656
<i>Total . . .</i>	<i>2,462,730</i>	<i>2,387,940</i>

### Current information on livestock and derivatives.

*Belgium:* Rains had a good effect on grass and there was a good bite for animals. The health of animals is good.

*Irish Free State:* Pastures which had become very bare during August benefited very considerably by the heavy rains in September, and afforded good keep for live stock, all classes of which were reported to have been maintained in good health and condition. Milk yields of dairy cattle were up to the normal for the season.

*Great Britain and Northern Ireland:* In some districts of England and Wales milk yields increased slightly and are now reported to be normal for the time of year. In Scotland the yield was generally about average and showed the usual seasonal

decline but in several areas the yield, owing to bare pastures, had fallen by the end of the month below the average for the season.

Cattle did moderately well during September and benefited from the fresher pastures. Sheep made good progress and are looking strong and healthy.

*Netherlands:* The wet weather hindered growth in pastures and meadows and it was anticipated that animals would be brought indoors earlier than usual.

Feeding conditions for milk cows have been average. Milk yields in September varied only slightly from the normal in Overijssel, North Holland and South Holland. They increased by 5 % in Groningen and 3 %, in Friesland. In Drenthé milk production declined by 5 to 12 %, in Guelder by 10 %, in Utrecht and Zeeland by 5 to 10 %, in North Brabant by 5 % and in Limburg by 10 %.

*Algeria:* Animals are in good condition and the situation is generally satisfactory.

*Union of South Africa:* During the month of August stock were adversely affected by the cold, but practically no diseases were reported in the Union. The condition of animals in the Cape Province was generally good. In Natal and Orange Free State stock were adversely affected by the cold winds with the result that there was a general falling-off in condition. Nevertheless, stock on the whole in these two provinces were in fair condition and had come through the winter satisfactorily. In several districts of the transvaal, where very little rain fell during the month, stock were in very poor conditions owing to the prolonged drought, and losses among lambs and ewes were suffered. In the other district of this province, however, stock were in fair to good condition and, on the whole, the position was satisfactory.

*New Zealand* (Telegram of 21 October): The total production of wool this season is estimated at 272 million pounds, a decrease of 6.9 % on the 292 million of 1934-35 and a decrease of 1.1 % on the average of 275 million in the five years ending 1933-34. These figures take into account not only the clip but also slipe wool and wool on exported skins.

## TRADE

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	0	0	0	0	220	2,242	0	0	—	—
Hungary . . . . .	126	503	0	0	6,526	15,496	0	0	—	—
Lithuania . . . . .	7	2	0	0	584	0	0	0	—	—
Poland . . . . .	84	220	0	2	1,274	1,596	9	507	—	—
Romania . . . . .	...	...	...	...	2,538	141	4	11	—	—
Yugoslavia . . . . .	2	119	0	0	2,500	553	2	0	—	—
U. S. S. R. . . . .	...	...	...	...	1,257	19,224	979	3)	0	—
Canada . . . . .	13,018	8,825	0	0	86,627	101,960	2	7	—	—
United States . . . . .	20	1,071	2,169	871	1,462	11,775	15,540	6,757	—	—
Argentina . . . . .	6,283	10,964	—	—	105,860	84,770	—	—	—	—
Chile . . . . .	...	...	...	...	659	586	410	765	—	—
Syria and Lebanon . . . . .	0	35	0	2	278	423	18	198	—	—
Algeria . . . . .	364	701	11	24	7,028	6,493	328	340	—	—
French Morocco . . . . .	240	597	0	0	4,489	4,674	0	0	—	—
Tunisia . . . . .	...	...	...	...	1,625	809	181	1,109	—	—
Australia . . . . .	1,775	3,393	0	0	44,924	36,090	0	0	—	—
New Zealand . . . . .	...	...	...	...	0	181	22	119	—	—
<i>Importing Countries:</i>										
Germany . . . . .	0	66	194	1,387	121	12,516	7,083	17,148	—	—
Austria . . . . .	0	0	139	366	0	0	4,802	4,872	—	—
Belgium . . . . .	60	79	2,037	2,895	1,742	1,459	25,450	26,905	—	—
Denmark . . . . .	0	0	388	589	31	9	10,763	6,764	—	—
Spain . . . . .	0	0	0	0	0	0	0	0	—	—
Estonia . . . . .	24	0	0	0	121	0	0	0	—	—
Irish Free State . . . . .	0	0	840	1,027	0	0	9,420	10,280	—	—
Finland . . . . .	0	0	101	112	0	0	1,338	1,098	—	—
France . . . . .	1,115	794	1,605	1,473	22,688	1,905	15,278	16,325	—	—
Gr. Brit. and N. Irel. . . . .	20	62	7,886	8,916	827	783	113,179	120,064	—	—
Greece . . . . .	0	0	1,087	666	0	0	8,684	6,285	—	—
Italy . . . . .	0	0	540	333	9	7	12,357	10,077	—	—
Latvia . . . . .	320	0	0	0	659	0	0	0	—	—
Norway . . . . .	0	0	267	185	0	0	3,907	3,761	—	—
Netherlands . . . . .	0	0	1,089	648	811	1,303	11,202	13,649	—	—
Portugal . . . . .	—	—	...	...	—	—	207	384	—	—
Sweden . . . . .	174	75	51	64	1,973	375	902	1,089	—	—
Switzerland . . . . .	0	0	692	769	2	7	10,750	10,558	—	—
Czechoslovakia . . . . .	0	0	174	0	4	4	849	88	—	—
Ceylon . . . . .	—	—	15	2	—	—	33	9	—	—
China . . . . .	24	53	743	190	289	185	10,889	11,202	—	—
India . . . . .	4	132	0	0	247	44	101	165	—	—
Japan . . . . .	—	—	655	877	—	—	10,878	9,811	—	—
Egypt . . . . .	0	0	0	11	51	9	1,257	7	—	—
Union of South Afr. . . . .	...	...	...	...	2	2)	529	31	—	—
<b>Totals . . . . .</b>	<b>23,700</b>	<b>27,691</b>	<b>20,683</b>	<b>21,409</b>	<b>297,428</b>	<b>305,619</b>	<b>277,353</b>	<b>280,385</b>	<b>—</b>	<b>—</b>
<b>Rye. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany . . . . .	0	22	57	223	51	6,945	5,393	2,209	—	—
Bulgaria . . . . .	0	0	0	0	0	18	0	0	—	—
Estonia . . . . .	46	0	0	0	783	0	22	0	—	—
Hungary . . . . .	22	22	0	0	728	3,455	0	0	—	—
Latvia . . . . .	119	0	0	0	1,929	0	0	0	—	—
Lithuania . . . . .	88	11	0	0	1,199	49	0	0	—	—
Poland . . . . .	529	591	0	0	11,671	10,479	0	229	—	—
Romania . . . . .	...	...	...	...	0	0	0	0	—	—
Sweden . . . . .	79	373	2	0	2,000	42	22	31	—	—
U. S. S. R. . . . .	...	...	...	...	547	3,280	—	—	—	—
Canada . . . . .	42	93	0	0	666	1,444	11	0	—	—
Argentina . . . . .	99	291	—	—	5,882	2,178	—	—	—	—
Algeria . . . . .	7	9	0	0	26	22	0	0	—	—
<i>Importing Countries:</i>										
Austria . . . . .	0	0	0	0	0	0	1,779	172	—	—
Belgium . . . . .	18	0	260	9	31	11	1,797	4,813	—	—
Denmark . . . . .	0	0	448	633	4	0	4,090	5,864	—	—
Finland . . . . .	0	0	60	31	0	0	450	1,173	—	—
France . . . . .	0	0	2	9	4	0	35	73	—	—
Italy . . . . .	0	0	4	2	0	0	179	126	—	—
Norway . . . . .	0	0	454	66	0	0	2,535	3,201	—	—
Netherlands . . . . .	0	7	143	106	227	7	1,854	5,110	—	—
Switzerland . . . . .	0	0	9	2	4	0	161	137	—	—
Czechoslovakia . . . . .	0	0	2	2	0	18	20	20	—	—
United States . . . . .	0	0	820	134	0	9	5,917	7,055	—	—
<b>Total . . . . .</b>	<b>1,049</b>	<b>1,419</b>	<b>2,261</b>	<b>1,224</b>	<b>25,752</b>	<b>27,957</b>	<b>24,265</b>	<b>30,213</b>	<b>—</b>	<b>—</b>

a) 3) See notes page 826.

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Wheat flour. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	7	326	0	4	659	5,578	73	55	—	—
Bulgaria	0	0	0	0	0	93	0	0	—	—
Spain	2	0	0	0	0	31	0	0	—	—
France	218	357	82	130	4,266	4,149	1,543	937	—	—
Hungary	97	22	0	0	809	1,466	0	0	—	—
Italy	412	293	2	11	3,748	3,847	95	311	—	—
Lithuania	0	0	0	0	0	22	0	0	—	—
Poland	95	11	0	0	750	282	0	0	—	—
Romania	...	...	...	...	0	7	0	0	—	—
Yugoslavia	4	7	0	0	40	55	0	0	—	—
U. R. S. S.	...	...	...	...	683	853	205	0	—	—
Canada	739	807	13	53	9,310	10,690	390	176	—	—
United States	529	851	0	0	7,637	7,582	9	2	—	—
Argentina	183	302	—	—	2,132	2,447	—	—	—	—
Chile	...	...	...	...	49	29	66	55	—	—
India	37	26	0	0	309	260	4	2	—	—
Japan	...	...	2	2	7,203	5,569	46	22	—	—
Algeria	53	93	9	4	911	897	108	101	—	—
French Morocco	0	0	0	0	51	49	0	11	—	—
Tunisia	...	...	...	...	597	187	62	247	—	—
Australia	911	1,206	0	0	14,379	10,922	2	0	—	—
<i>Importing Countries:</i>										
Austria	0	0	49	15	2	0	774	992	—	—
Belgium	4	4	9	15	51	42	148	287	—	—
Denmark	2	2	24	79	18	13	474	580	—	—
Estonia	0	0	0	0	0	0	0	0	—	—
Irish Free State	0	0	11	53	0	0	527	1,091	—	—
Finland	0	0	71	86	0	0	849	1,146	—	—
Gr. Brit. and N. Irel.	269	309	719	992	3,400	3,245	9,103	11,696	—	—
Greece	0	0	2	2	0	2	33	13	—	—
Norway	0	0	53	130	4	4	999	930	—	—
Netherlands	0	0	68	49	9	7	908	880	—	—
Portugal	—	—	...	...	—	—	150	137	—	—
Sweden	0	0	0	0	0	0	2	4	—	—
Czechoslovakia	0	0	0	2	4	7	20	22	—	—
Ceylon	—	—	37	31	—	—	403	386	—	—
China	2	2	90	79	57	165	1,499	1,316	—	—
Indo-China	—	—	33	29	—	—	384	337	—	—
Java and Madura	—	—	...	...	—	—	1,149	1,087	—	—
Syria and Lebanon	2	4	7	4	62	77	101	888	—	—
Egypt	0	0	4	9	0	0	73	99	—	—
Union of South Afr.	...	...	...	...	2	0	11	9	—	—
New Zealand	...	...	...	...	2	234	2	209	—	—
Totals	3,566	4,622	1,285	1,779	57,144	58,579	20,444	24,028	—	—
<b>Barley. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	2	0	0	0	0	522	0	0	—	—
Spain	0	0	0	0	0	44	0	0	—	—
Hungary	18	15	0	0	93	1,093	24	0	—	—
Lithuania	2	0	0	0	176	0	0	0	—	—
Poland	201	209	0	0	7,180	3,538	0	0	—	—
Romania	...	...	...	...	4,198	14,654	0	4	—	—
Czechoslovakia	2	0	0	0	1,140	1,116	2	2	—	—
Yugoslavia	0	101	0	0	538	176	0	0	—	—
U. S. S. R.	...	...	...	...	3,120	10,728	—	—	—	—
Canada	346	545	0	0	7,227	820	0	0	—	—
United States	276	377	2	73	2,132	2,531	5,291	165	—	—
Argentina	146	432	—	—	9,590	11,680	—	—	—	—
Chile	...	...	...	...	1,217	2,004	0	0	—	—
India	0	53	9	0	392	2	13	108	—	—
Algeria	40	117	55	126	1,177	1,144	745	496	—	—
Egypt	0	0	0	0	0	139	18	0	—	—
French Morocco	88	631	0	0	5,706	2,635	0	0	—	—
Australia	42	75	0	0	1,380	1,407	0	0	—	—
<i>Importing Countries:</i>										
Germany	0	0	152	247	2	2	10,498	7,648	—	—
Austria	0	0	68	174	0	0	1,574	2,586	—	—
Belgium	26	26	494	567	454	655	8,481	9,017	—	—
Denmark	53	71	71	119	1,398	977	1,030	1,314	—	—
Irish Free State	0	0	0	0	4	11	256	212	—	—
France	0	0	187	401	2	0	3,982	3,840	—	—
Gr. Brit. and N. Irel.	0	2	1,859	1,446	9	26	14,315	20,322	—	—
Greece	0	0	7	0	0	0	77	4	—	—
Italy	0	0	143	79	0	0	1,852	1,120	—	—
Norway	0	0	9	0	2	0	168	293	—	—
Netherlands	0	7	606	769	194	26	5,913	11,543	—	—
Switzerland	0	0	79	251	0	0	2,696	2,412	—	—
Syria and Lebanon	4	2	0	2	139	93	44	216	—	—
Tunisia	...	...	...	...	201	79	1,008	575	—	—
Totals	1,242	2,663	3,741	4,254	47,671	56,102	57,987	61,877	—	—



COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Oats. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Irish Free State . . .	0	0	0	0	0	20	0	0	—	—
Hungary . . . . .	0	0	0	0	0	761	0	0	—	—
Lithuania . . . . .	0	0	0	0	212	2	0	0	—	—
Poland . . . . .	26	62	0	0	994	304	0	0	—	—
Romania . . . . .	...	...	...	...	68	505	0	0	—	—
Czechoslovakia . . .	42	...	0	0	53	741	2	0	—	—
Yugoslavia . . . . .	31	40	0	0	280	112	0	0	—	—
Canada . . . . .	220	366	0	0	4,965	2,070	0	2	—	—
United States . . . .	2	2	0	9	150	123	4,824	71	—	—
Argentina . . . . .	699	1,420	—	—	13,342	7,117	—	—	—	—
Chile . . . . .	...	...	...	...	1,243	1,532	0	0	—	—
Tunisia . . . . .	...	...	...	...	410	37	0	22	—	—
Australia . . . . .	7	33	0	0	265	33	2	2	—	—
<i>Importing Countries:</i>										
Germany . . . . .	0	2	79	106	13	1,931	4,797	97	—	—
Austria . . . . .	0	0	51	57	0	0	287	450	—	—
Belgium . . . . .	0	0	15	20	0	0	432	390	—	—
Denmark . . . . .	7	4	18	95	657	26	884	373	—	—
Estonia . . . . .	0	0	0	0	15	0	0	0	—	—
Finland . . . . .	0	0	0	0	2	9	11	549	—	—
France . . . . .	0	2	33	46	33	179	425	236	—	—
Gr. Brit. and N. Irel.	0	0	163	306	18	20	3,488	4,894	—	—
Italy . . . . .	0	0	227	234	0	0	4,808	2,811	—	—
Latvia . . . . .	0	0	0	0	0	0	0	2	—	—
Norway . . . . .	0	0	0	0	0	4	64	2	—	—
Netherlands . . . . .	0	0	55	93	11	20	873	1,142	—	—
Sweden . . . . .	0	7	0	0	37	9	24	915	—	—
Switzerland . . . . .	0	0	331	324	0	0	4,354	4,780	—	—
Algeria . . . . .	4	11	13	13	132	64	141	282	—	—
<b>Totals . . .</b>	<b>1,038</b>	<b>1,949</b>	<b>985</b>	<b>1,303</b>	<b>22,900</b>	<b>15,619</b>	<b>25,415</b>	<b>17,020</b>		
<b>Maize. — Thousand centals (1 cental = 100 lb.).</b>										
COUNTRIES	AUGUST				TEN MONTHS (November 1-August 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<i>Exporting Countries:</i>										
Bulgaria . . . . .	0	317	0	0	399	2,180	0	0	2,564	0
Hungary . . . . .	0	101	589	0	130	985	1,512	0	1,056	0
Romania . . . . .	...	...	...	...	8,371	7,778	0	2	10,115	2
Yugoslavia . . . . .	617	1,391	0	0	11,191	9,952	0	2	11,810	2
United States . . . .	26	234	4,791	110	247	2,077	18,735	234	2,401	763
Argentina . . . . .	14,352	13,420	—	—	114,284	109,360	—	—	128,166	—
Java and Madura . . .	55	2	—	—	1,402	913	—	—	924	—
Indo-China . . . . .	851	1,362	—	—	6,914	5,818	—	—	8,439	—
Syria and Lebanon . .	0	0	0	0	2	0	7	66	0	66
Egypt . . . . .	0	0	2	0	0	2	24	15	2	20
Union of South Afr.	1,131	395	...	...	7,791	395	0	421	3,693	432
<i>Importing Countries:</i>										
Germany . . . . .	0	0	265	758	0	0	7,355	5,789	0	7,452
Austria . . . . .	0	0	395	683	0	2	8,252	8,869	2	10,448
Belgium . . . . .	26	53	1,713	2,189	597	470	13,076	14,032	822	16,824
Denmark . . . . .	0	0	445	664	0	0	4,506	3,455	0	4,586
Spain . . . . .	0	0	240	256	0	0	732	1,283	0	1,911
Irish Free State . . .	0	0	833	981	0	0	5,271	5,463	0	6,543
Finland . . . . .	0	0	146	46	0	0	597	1,239	0	1,312
France . . . . .	0	0	633	659	9	20	11,832	10,933	22	13,607
Gr. Brit. and N. Irel.	251	262	6,041	5,318	1,936	1,841	51,954	52,726	2,116	66,597
Greece . . . . .	0	0	86	2	0	0	913	33	0	37
Italy . . . . .	0	0	802	683	2	2	3,340	3,622	2	3,874
Norway . . . . .	0	0	476	141	0	0	2,205	2,328	0	3,084
Netherlands . . . . .	0	0	1,221	1,898	0	13	15,807	18,091	13	22,011
Poland . . . . .	0	0	0	0	0	0	0	60	0	60
Portugal . . . . .	—	—	...	...	—	—	450	1,164	—	1,669
Sweden . . . . .	0	0	240	68	0	0	769	2,981	0	3,106
Switzerland . . . . .	0	0	146	157	0	0	1,382	1,495	0	1,792
Czechoslovakia . . .	0	0	53	265	0	0	2,110	4,632	0	5,130
Canada . . . . .	0	0	293	450	4	2	3,565	3,318	2	4,090
Japan . . . . .	—	—	492	0	—	—	904	2	—	2
Tunisia . . . . .	...	...	...	...	2	0	55	101	4	101
<b>Totals . . .</b>	<b>17,309</b>	<b>17,537</b>	<b>19,902</b>	<b>15,328</b>	<b>153,281</b>	<b>141,810</b>	<b>155,353</b>	<b>142,356</b>	<b>172,153</b>	<b>175,541</b>

1) a) See notes page 826.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (January 1-Dec 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Rice. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Spain	7	198	0	0	346	496	0	0	1,010	0
Italy	84	366	4	0	1,596	2,218	51	18	3,519	44
United States	35	66	13	49	1,014	694	439	379	917	558
Brazil	...	...	...	...	902	359	...	...	734	...
India	2,326	2,500	553	776	30,067	25,303	2,696	4,579	31,242	8,852
Indo-China	1,843	2,784	...	...	30,386	22,302	9	4	28,462	31
Nam	2,366	3,993	...	...	22,465	26,672	...	...	43,202	...
Egypt	55	33	0	0	712	1,151	13	7	1,508	9
<i>Importing Countries:</i>										
Germany	44	57	403	628	289	461	2,818	3,750	745	6,341
Austria	0	0	46	44	0	0	425	410	0	633
Belgium	2	4	75	128	29	73	600	944	97	1,446
Denmark	0	0	2	11	0	0	62	93	0	137
Estonia	...	...	2	2	...	...	9	9	...	15
Irish Free State	0	0	4	2	0	0	44	42	...	57
France	44	42	855	1,146	445	489	6,486	9,872	661	14,171
Gr. Brit. and N. Irel.	7	20	119	227	115	126	2,235	2,218	174	2,862
Greece	0	0	57	51	0	0	397	355	0	533
Hungary	0	0	9	20	0	0	192	256	0	448
Latvia	0	0	0	0	0	0	7	4	0	11
Lithuania	0	0	0	0	0	0	4	9	0	15
Norway	0	0	4	9	0	0	79	73	0	106
Netherlands	181	181	205	525	1,332	1,215	2,035	2,932	2,013	3,629
Poland	29	13	101	157	108	97	1,001	842	157	974
Portugal	...	...	...	...	...	...	287	372	...	575
Sweden	...	...	7	4	...	...	176	165	...	223
Switzerland	0	0	35	22	0	0	291	225	0	397
Czechoslovakia	0	0	101	139	0	0	882	897	0	1,497
Yugoslavia	0	0	40	40	0	0	267	258	0	439
Canada	0	2	35	60	2	4	582	628	4	732
Chile	...	...	...	...	...	...	143	150	...	340
Ceylon	0	0	1,100	996	2	2	8,217	7,430	4	10,977
China	4	2	520	802	60	139	27,236	11,634	150	17,000
Java and Madura	29	7	...	...	42	64	2,487	112	132	1,356
Japan	53	68	26	0	690	1,356	154	64	1,457	152
Syria and Lebanon	0	0	26	15	0	0	251	291	0	428
Algeria	0	0	9	2	2	7	110	313	9	355
Tunisia	...	...	...	...	0	0	20	42	0	57
Union of South Afr.	...	...	...	...	0	0	507	608	0	1,184
Australia	20	22	0	2	168	163	29	40	244	49
New Zealand	...	...	...	...	0	0	51	53	0	73
<b>Totals</b>	<b>7,129</b>	<b>10,358</b>	<b>4,351</b>	<b>5,857</b>	<b>90,812</b>	<b>83,391</b>	<b>61,292</b>	<b>50,078</b>	<b>116,443</b>	<b>76,708</b>
<b>Linseed. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Lithuania	2	2	0	0	90	51	0	0	141	0
Argentina	2,952	2,200	...	...	28,107	21,268	...	...	30,303	...
India	49	569	0	0	1,387	4,094	0	0	6,175	0
Tunisia	...	...	...	...	0	0	0	2	0	2
<i>Importing Countries:</i>										
Germany	0	0	922	370	0	2	3,512	5,410	2	6,986
Belgium	0	2	236	86	84	49	1,709	1,166	68	1,790
Denmark	...	...	26	40	...	...	366	282	...	359
Spain	...	...	55	57	...	...	276	209	...	366
Estonia	0	0	0	0	2	2	4	4	15	4
Finland	0	0	11	7	0	0	57	84	0	104
France	0	0	503	355	2	4	3,964	3,937	7	5,243
Gr. Brit. and N. Irel.	0	13	370	359	2	15	3,547	3,195	15	4,123
Greece	0	0	11	11	0	0	75	73	0	112
Hungary	0	0	0	0	4	4	0	0	13	0
Italy	0	0	141	79	0	0	1,058	917	0	1,422
Latvia	0	0	4	2	49	29	55	42	79	86
Norway	0	0	66	0	0	0	412	280	0	337
Netherlands	7	9	381	481	60	62	6,378	4,370	77	7,108
Poland	0	0	0	7	0	0	0	168	0	170
Sweden	...	...	64	18	...	...	655	690	...	849
Czechoslovakia	0	0	24	13	0	0	408	353	0	556
Yugoslavia	0	0	7	2	0	0	134	99	0	139
Canada	0	0	0	0	4	2	256	256	4	443
United States	...	...	633	388	...	...	6,925	5,236	...	7,934
Japan	0	0	22	7	2	2	373	359	2	434
Australia	0	0	148	31	0	0	675	377	0	560
<b>Totals</b>	<b>3,010</b>	<b>2,795</b>	<b>3,624</b>	<b>2,313</b>	<b>29,793</b>	<b>25,584</b>	<b>30,839</b>	<b>27,509</b>	<b>36,901</b>	<b>39,127</b>

1) 2) See notes page 826.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934

**Butter. — (Thousand lb.).**

<i>Exporting Countries:</i>										
Austria . . . . .	644	1,003	2	2	3,856	3,622	11	152	7,053	157
Denmark . . . . .	25,256	26,628	9	26	207,182	230,126	254	71	330,311	20
Estonia . . . . .	3,062	3,265	0	0	15,618	15,086	0	0	22,306	0
Irish Free State . . . . .	9,824	8,115	9	2	46,857	40,931	33	71	56,886	84
Finland . . . . .	1,788	1,728	0	0	15,701	17,666	0	0	24,463	13
Hungary . . . . .	218	1,003	0	0	2,698	5,421	0	0	8,790	0
Latvia . . . . .	5,465	3,768	0	0	26,242	23,325	0	0	34,615	0
Lithuania . . . . .	4,544	2,626	0	0	17,655	14,454	0	0	21,321	0
Norway . . . . .	0	0	0	0	247	344	0	2	547	2
Netherlands . . . . .	10,911	7,513	4	90	73,147	62,464	234	461	81,320	1,173
Poland . . . . .	1,550	948	0	0	6,343	7,050	2	0	9,782	9
Sweden . . . . .	5,016	4,674	0	0	33,693	35,241	2	4	51,152	4
U. S. S. R. . . . .	—	—	—	—	11,131	17,844	—	—	83,562	—
Argentina . . . . .	64	1,217	—	—	9,725	9,897	—	—	18,345	—
India . . . . .	22	18	57	46	143	128	494	388	212	642
Syria and Lebanon . . . . .	15	108	31	9	348	249	236	478	293	809
Australia . . . . .	5,725	7,584	0	0	163,107	148,912	2	0	246,784	2
New Zealand . . . . .	16,462	13,898	—	—	197,131	189,900	—	—	292,830	—
<i>Importing Countries:</i>										
Germany . . . . .	2	0	11,252	10,247	11	7	99,801	67,230	9	136,165
Belgium . . . . .	4	7	251	705	44	68	8,067	11,874	108	20,629
Spain . . . . .	2	0	0	0	22	9	71	134	15	143
France . . . . .	1,700	668	110	161	7,295	4,632	869	9,068	7,297	9,603
Gr. Brit. and N. Irel. . . . .	637	672	96,195	90,280	13,444	8,999	764,142	799,099	12,635	1,066,713
Greece . . . . .	—	—	146	57	—	—	593	346	—	690
Italy . . . . .	26	7	97	57	243	227	756	3,217	276	3,801
Switzerland . . . . .	0	0	11	9	2	0	117	624	0	653
Czechoslovakia . . . . .	0	0	0	403	0	22	1,962	1,887	22	2,229
Canada . . . . .	37	49	31	0	282	262	95	2,818	428	2,873
United States . . . . .	423	123	148	82	1,369	1,041	21,813	500	1,321	1,164
Ceylon . . . . .	—	—	42	37	—	—	571	496	—	681
Java and Madura . . . . .	—	—	—	—	—	—	1) 5,930	6,550	—	10,313
Japan . . . . .	—	—	—	—	—	—	15	37	—	64
Egypt . . . . .	0	2	77	68	115	66	661	534	82	789
Tunisia . . . . .	—	—	—	—	11	2	1,133	1,124	22	2,114
Totals . . . . .	93,397	85,624	108,474	102,281	853,662	837,995	907,864	907,165	1,312,787	1,281,539

**Cheese. — (Thousand lbs.).**

<i>Exporting Countries:</i>										
Bulgaria . . . . .	494	256	0	0	2,235	974	0	0	2,652	0
Denmark . . . . .	1,171	1,206	2	15	8,715	9,151	22	33	13,891	73
Finland . . . . .	1,001	904	2	0	5,906	5,016	11	9	8,523	40
Italy . . . . .	3,477	3,790	809	783	34,055	34,802	7,101	6,859	55,248	10,214
Lithuania . . . . .	2	141	0	0	452	1,261	2	2	2,200	2
Norway . . . . .	271	375	15	13	1,878	2,581	148	112	4,418	214
Netherlands . . . . .	12,690	13,040	60	302	89,418	90,421	474	1,177	134,892	1,455
Poland . . . . .	11	214	20	35	545	1,792	207	397	3,926	531
Switzerland . . . . .	3,230	3,199	247	362	26,279	25,395	2,121	3,316	39,143	5,353
Czechoslovakia . . . . .	99	238	262	282	1,008	1,175	1,742	1,825	1,995	2,628
Yugoslavia . . . . .	454	664	4	7	2,313	2,438	35	33	4,045	57
Canada . . . . .	6,479	7,568	121	51	15,995	21,363	763	556	61,167	946
Australia . . . . .	659	245	9	9	9,791	5,212	44	46	12,467	77
New Zealand . . . . .	10,640	14,778	—	—	133,109	155,532	1) 0	1) 0	222,266	2
<i>Importing Countries:</i>										
Germany . . . . .	51	159	4,738	6,261	516	1,356	39,324	49,977	2,114	74,488
Austria . . . . .	474	445	134	106	4,780	2,366	1,281	1,257	3,860	1,720
Belgium . . . . .	35	20	5,941	5,027	183	273	33,993	30,342	353	47,818
Spain . . . . .	18	7	150	157	86	101	1,567	1,442	123	2,482
Irish Free State . . . . .	71	40	11	11	271	128	51	46	514	64
France . . . . .	1,340	1,453	2,423	3,347	15,962	16,202	21,929	22,899	25,973	35,173
Gr. Brit. and N. Irel. . . . .	531	509	20,840	26,722	3,677	3,746	202,656	228,190	5,968	334,718
Greece . . . . .	0	20	40	9	126	891	941	137	1,144	295
Hungary . . . . .	7	2	0	0	148	55	2	0	176	0
Portugal . . . . .	—	—	—	—	—	—	1) 201	1) 192	—	525
Sweden . . . . .	—	—	106	97	—	—	765	664	—	1,248
United States . . . . .	106	165	3,646	3,510	888	974	30,384	29,716	1,512	47,532
India . . . . .	0	0	79	97	2	2	708	637	4	1,151
Java and Madura . . . . .	—	—	—	—	—	—	1) 1,047	1) 955	—	1,656
Syria and Lebanon . . . . .	62	90	90	104	403	315	650	701	534	1,221
Algeria . . . . .	4	11	849	747	86	77	7,542	7,346	119	11,288
Egypt . . . . .	0	0	886	617	57	68	4,815	4,010	126	6,539
Tunisia . . . . .	—	—	—	—	2) 29	2) 1	1,380	1,464	86	2,959
Totals . . . . .	43,386	49,539	41,484	48,671	358,913	383,840	361,906	394,340	609,439	592,867

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34

**Cotton. — Thousand centals (1 cental = 100 lb.).**

<b>Exporting Countries:</b>										
United States . . . . .	1,343	1,437	40	53	26,542	40,960	536	747	—	—
Argentina . . . . .	170	132	—	—	694	450	—	—	—	—
Brazil . . . . .	—	—	—	—	3,567	1,303	—	—	—	—
India . . . . .	496	723	99	95	12,553	12,110	1,850	974	—	—
Egypt . . . . .	258	399	—	—	7,912	8,927	—	—	—	—
<b>Importing Countries:</b>										
Germany . . . . .	66	90	717	492	966	1,235	6,391	9,539	—	—
Austria . . . . .	0	0	64	44	4	2	672	664	—	—
Belgium . . . . .	0	42	0	137	710	553	2,068	1,768	—	—
Denmark . . . . .	—	—	9	20	—	—	185	190	—	—
Spain . . . . .	2	0	134	99	51	33	2,161	2,412	—	—
Estonia . . . . .	0	0	9	11	0	0	117	88	—	—
Finland . . . . .	0	0	15	26	4	2	287	249	—	—
France . . . . .	22	77	392	280	620	421	5,049	7,094	—	—
Gr. Brit. and N. Irel. . . . .	64	75	617	1,032	710	606	12,170	14,266	—	—
Greece . . . . .	0	0	15	11	11	0	165	163	—	—
Hungary . . . . .	0	0	35	40	0	0	489	509	—	—
Italy . . . . .	0	0	220	187	2	9	3,501	4,716	—	—
Latvia . . . . .	0	0	9	9	0	0	108	108	—	—
Norway . . . . .	0	0	4	7	0	0	64	53	—	—
Netherlands . . . . .	0	0	79	62	4	7	847	988	—	—
Poland . . . . .	0	2	126	123	9	4	1,437	1,519	—	—
Portugal . . . . .	—	—	—	—	—	—	448	498	—	—
Sweden . . . . .	—	—	53	51	—	—	624	661	—	—
Switzerland . . . . .	0	0	20	35	2	0	564	597	—	—
Czechoslovakia . . . . .	4	7	137	126	73	97	1,554	1,845	—	—
Yugoslavia . . . . .	0	0	33	22	20	0	320	289	—	—
Canada . . . . .	—	—	71	86	—	—	1,241	1,506	—	—
China . . . . .	22	26	64	289	384	767	1,640	2,835	—	—
Japan . . . . .	31	44	873	1,526	595	384	17,430	17,163	—	—
Algeria . . . . .	0	0	0	0	4	2	4	11	—	—
<b>Totals . . . . .</b>	<b>2,478</b>	<b>3,054</b>	<b>3,835</b>	<b>4,863</b>	<b>55,437</b>	<b>67,872</b>	<b>61,922</b>	<b>71,452</b>	<b>—</b>	<b>—</b>

**Wool = (Thousand lb.).**

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (September 1-August 31)	
	1935	1934	1935	1934	1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
<b>Exporting Countries:</b>										
Irish Free State . . . . .	1,841	1,179	24	73	13,486	16,810	655	697	—	—
Hungary . . . . .	181	2,374	31	227	1,867	6,270	3,267	2,264	—	—
Argentina . . . . . (a)	8,583	7,496	—	—	268,475	260,261	—	—	—	—
Argentina . . . . . (b)	2,954	582	—	—	32,159	15,922	—	—	—	—
Chile . . . . .	—	—	—	—	21,729	26,504	212	0	—	—
India . . . . .	4,105	2,956	425	403	52,565	55,724	7,436	4,643	—	—
Syria and Lebanon . . . . .	2	595	0	18	5,545	4,799	82	324	—	—
Algeria . . . . .	1,129	1,060	203	115	8,177	9,253	2,319	2,368	—	—
Egypt . . . . .	536	170	4	7	3,576	2,721	55	57	—	—
U.S. of S. Africa . . . . . (a)	558	2,346	—	—	213,563	228,426	57	0	—	—
U.S. of S. Africa . . . . . (b)	871	227	—	—	7,965	6,228	1,329	1,418	—	—
Australia . . . . . (a)	9,187	6,285	179	24	815,232	703,392	3,695	7,035	—	—
Australia . . . . . (b)	4,863	2,959	0	0	73,571	65,852	132	342	—	—
New Zealand . . . . . (a)	2,416	1,905	—	—	160,673	228,155	101	0	—	—
New Zealand . . . . . (b)	4,453	3,203	—	—	46,196	47,122	31	15	—	—
<b>Importing Countries:</b>										
Germany . . . . . (a)	77	783	8,973	5,086	5,701	2,899	235,040	285,918	—	—
Germany . . . . . (b)	37	243	2,879	1,462	2,086	5,935	55,398	62,340	—	—
Austria . . . . .	11	218	1,863	373	1,038	688	18,843	18,045	—	—
Belgium . . . . . (a)	3,115	2,736	11,347	3,353	99,341	96,175	222,643	173,077	—	—
Belgium . . . . . (b)	1,614	847	463	168	20,113	24,134	4,394	5,463	—	—
Denmark . . . . .	64	29	251	287	401	225	4,700	4,938	—	—
Spain . . . . .	410	302	344	626	3,106	4,292	10,697	5,970	—	—
Finland . . . . .	0	0	494	364	220	44	5,417	5,615	—	—
France . . . . .	2,628	2,641	30,307	12,322	43,914	51,150	375,164	374,703	—	—
Gr. Brit. and N. Irel. . . . .	26,398	12,965	39,084	23,173	317,070	356,872	836,329	843,540	—	—
Greece . . . . .	46	101	503	560	721	1,369	7,568	4,612	—	—
Italy . . . . . (a)	0	170	6,418	4,284	628	1,243	88,373	142,633	—	—
Italy . . . . . (b)	11	373	1,279	992	1,186	4,103	14,127	21,129	—	—
Norway . . . . .	95	119	207	194	1,329	1,779	2,304	2,335	—	—
Netherlands . . . . . (a)	141	79	227	410	3,060	4,462	6,301	9,081	—	—
Netherlands . . . . . (b)	66	90	406	399	1,501	1,398	7,829	6,570	—	—
Poland . . . . .	0	20	2,981	765	112	745	36,341	38,111	—	—
Sweden . . . . .	—	—	1,706	1,477	—	—	18,265	22,882	—	—
Switzerland . . . . .	18	2	1,724	1,479	212	247	22,053	20,130	—	—
Czechoslovakia . . . . .	29	390	5,115	1,831	1,437	2,507	33,215	33,285	—	—
Yugoslavia . . . . .	84	9	778	456	1,107	520	7,690	6,259	—	—
Canada . . . . .	1,197	503	1,272	809	6,261	8,155	11,973	18,495	—	—
United States . . . . .	335	42	20,362	7,046	2,485	4,405	147,234	156,050	—	—
Japan . . . . .	75	0	18,962	2,288	507	408	224,403	202,370	—	—
Tunisia . . . . .	—	—	—	—	847	847	236	317	—	—
<b>Totals . . . . .</b>	<b>78,190</b>	<b>55,999</b>	<b>158,811</b>	<b>70,871</b>	<b>2,239,162</b>	<b>2,251,861</b>	<b>2,415,908</b>	<b>2,469,031</b>	<b>—</b>	<b>—</b>

COUNTRIES	AUGUST		TWO MONTHS (July 1-August 31)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	AUGUST		TWO MONTHS (July 1-August 31)		TWELVE MONTHS (July 1- June 30)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Coffee. — (Thousand lb.).</b>						<b>Tea. — (Thousand lb.).</b>					
<b>EXPORTS.</b>						<b>EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil . . . . .	...	...	163,925	101,016	1,773,792	Ceylon . . . . .	13,644	17,564	31,833	37,591	213,701
India . . . . .	176	4	203	79	16,521	China . . . . .	8,435	10,944	15,432	23,773	96,477
Java and Madura .	5,580	8,457	11,682	16,127	65,500	India . . . . .	35,861	40,887	65,004	69,560	108,701
						Java and Madura .	7,855	8,684	17,020	18,583	120,847
						Japan . . . . .	...	...	5,024	2,209	30,986
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany . . . . .	0	18	0	26	66	Belgium . . . . .	0	0	0	0	9
Belgium . . . . .	62	11	121	26	152	Irish Free State .	4	75	7	148	256
France . . . . .	0	0	2	2	9	France . . . . .	0	2	2	4	26
Gr. Britain and N.						Gr. Brit. and N. Irel.	5,417	6,197	10,547	12,831	68,831
Ireland . . . . .	4,059	983	5,869	2,112	18,962	Netherlands . . .	13	13	20	22	132
Netherlands . . .	712	1,058	1,130	1,960	11,524	United States . .	66	152	93	234	765
Portugal . . . . .	...	...	214	174	2,712	Syria and Lebanon	0	0	0	0	9
Switzerland . . .	...	88	0	141	553	Algeria . . . . .	4	11	4	20	93
Canada . . . . .	13	0	24	7	115	Union of S. Africa.	...	...	...	...	31
United States . . .	864	701	1,847	1,512	16,449	Australia . . . . .	62	123	112	181	802
Ceylon . . . . .	0	0	0	2	4	New Zealand . . .	...	...	9	4	112
Syria and Lebanon.	0	0	0	0	73						
Australia . . . . .	0	4	2	9	7						
<b>Totals . . . . .</b>	—	—	—	—	1,906,432	<b>Totals . . . . .</b>	71,361	84,652	145,107	165,160	641,778
<b>IMPORTS.</b>						<b>IMPORTS.</b>					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany . . . . .	25,814	24,161	54,055	67,362	327,491	Germany . . . . .	899	769	1,673	2,044	10,216
Austria . . . . .	988	1,206	1,964	2,145	12,291	Austria . . . . .	46	46	77	90	836
Belgium . . . . .	7,882	9,866	15,723	17,672	103,750	Belgium . . . . .	40	33	73	66	613
Bulgaria . . . . .	53	75	128	139	1,060	Denmark . . . . .	93	73	172	137	1,236
Denmark . . . . .	4,321	4,630	8,543	9,989	58,260	Spain . . . . .	7	9	26	31	273
Spain . . . . .	4,068	3,047	8,695	6,012	52,117	Estonia . . . . .	9	2	13	4	77
Estonia . . . . .	13	11	24	22	163	Irish Free State .	1,219	1,468	2,577	3,935	22,818
Irish Free State .	37	22	86	42	520	Finland . . . . .	18	18	35	26	247
Finland . . . . .	3,250	3,252	6,698	6,420	39,117	France . . . . .	71	117	260	196	2,169
France . . . . .	39,606	36,010	73,979	68,068	392,274	Gr. Britain and N.					
Gr. Britain and N.						Ireland . . . . .	42,981	51,339	76,534	91,053	507,905
Ireland . . . . .	719	1,693	1,653	3,252	57,574	Greece . . . . .	40	18	62	33	448
Greece . . . . .	1,049	1,041	2,134	2,035	12,291	Hungary . . . . .	18	35	29	60	611
Hungary . . . . .	207	448	459	906	5,534	Italy . . . . .	9	13	22	24	342
Italy . . . . .	6,246	6,003	12,747	13,212	86,975	Latvia . . . . .	4	9	9	9	64
Latvia . . . . .	13	2	26	2	143	Lithuania . . . .	0	15	11	18	77
Lithuania . . . .	22	42	42	66	419	Norway . . . . .	33	24	57	40	337
Norway . . . . .	3,397	2,507	7,820	4,568	35,894	Netherlands . . .	2,500	2,859	4,939	6,691	30,012
Netherlands . . .	8,763	5,719	15,351	11,978	62,949	Poland . . . . .	254	247	538	500	3,814
Poland . . . . .	743	1,301	1,704	2,504	15,668	Portugal . . . . .	...	...	31	46	399
Portugal . . . . .	...	...	703	882	15,847	Sweden . . . . .	66	64	115	112	944
Sweden . . . . .	8,415	8,327	16,555	16,286	97,506	Switzerland . . .	141	99	333	190	1,609
Switzerland . . .	3,812	2,553	10,659	4,612	32,476	Czechoslovakia .	99	84	146	126	1,058
Czechoslovakia .	1,894	1,927	3,404	3,971	23,810	Yugoslavia . . . .	26	26	49	46	439
Yugoslavia . . . .	972	1,263	2,317	2,238	13,770	Canada . . . . .	2,915	1,975	6,003	3,164	30,287
Canada . . . . .	2,463	2,229	4,877	4,420	31,800	United States . .	6,521	9,193	12,350	15,664	83,571
United States . . .	124,445	100,066	271,657	204,120	1,551,815	Chile . . . . .	...	...	642	53	5,095
Chile . . . . .	...	...	908	465	5,743	Syria and Lebanon	37	...	37	11	470
Ceylon . . . . .	278	425	578	677	3,272	Algeria . . . . .	260	278	467	628	2,899
Japan . . . . .	765	483	1,177	972	7,017	Egypt . . . . .	917	1,151	2,262	2,295	15,966
Syria and Lebanon	243	86	249	187	2,286	Tunisia . . . . .	...	...	...	...	3,417
Algeria . . . . .	2,463	2,306	5,260	5,174	31,207	Union of S. Africa.	...	...	...	...	13,058
Egypt . . . . .	1,475	1,243	3,228	2,425	15,756	Australia . . . . .	3,552	5,670	7,826	9,207	46,875
Tunisia . . . . .	...	...	...	...	3,382	New Zealand . . .	...	...	...	...	9,374
Un. of S. Africa .	...	...	...	...	26,960						
Australia . . . . .	443	183	864	428	3,567						
New Zealand . . .	...	...	26	15	456						
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
India . . . . .	0	0	0	0	0	China . . . . .	40	68	99	150	602
						India . . . . .	723	313	1,168	485	3,148
						Java and Madura .	...	...	134	240	1,648
<b>Totals . . . . .</b>	254,859	222,127	534,293	463,267	3,131,473	<b>Totals . . . . .</b>	63,538	76,019	119,836	138,329	802,988

1) 2) See notes page 826.

COUNTRIES	AUGUST		ELEVEN MONTHS (Oct. 1-August 31)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	AUGUST		TWELVE MONTHS (Aug. 1-July 31)		TWELVE MONTHS (August 1-July 31)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1934-35	1933-34	1933-34
<b>Cacao. — (Thousand lb.).</b>						<b>Total Wheat and Flour *)</b> (Thousand centals).					
<b>Exports.</b>						<b>a) NET EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Grenada . . . . .	...	...	2) 8,148	2) 8,620	9,612	Germany . . . . .	4) 0	4) 0	4) 220	2,732	—
Dominican Republ. . . . .	2,557	1,761	61,659	49,474	49,818	Bulgaria . . . . .	0	0	220	15,620	—
Brazil . . . . .	...	...	1) 180,791	1) 153,167	211,530	Spain . . . . .	2	0	0	42	—
Ecuador . . . . .	...	...	2) 26,905	2) 30,664	37,084	Estonia . . . . .	24	0	121	0	—
Trinidad . . . . .	2,258	946	44,035	27,957	29,057	France . . . . .	4) 0	4) 11,041	4) 17,451	—	—
Venezuela . . . . .	...	...	2) 15,664	2) 19,328	25,223	Hungary . . . . .	256	531	7,604	17,451	—
Ceylon . . . . .	767	344	7,319	8,644	8,841	Italy . . . . .	7	44	4) 0	—	—
Java and Madura . . . . .	679	805	2,983	3,247	4,195	Latvia . . . . .	320	0	659	0	—
French Cameroun . . . . .	2,011	1,508	47,829	39,234	41,238	Lithuania . . . . .	7	2	584	29	—
Ivory Coast . . . . .	5,097	3,327	94,116	72,819	78,681	Poland . . . . .	209	234	2,264	1,466	—
Gold Coast . . . . .	27,337	27,710	520,562	489,904	494,792	Romania . . . . .	...	...	2,533	139	—
Nigeria and British Cameroun . . . . .	5,582	7,690	180,572	156,346	159,165	Sweden . . . . .	123	11	1,069	4) 606	—
Saint Thomas and Prince Is. . . . .	1,468	1,519	20,981	18,960	19,780	Yugoslavia . . . . .	9	128	2,551	—	—
French Togoland . . . . .	1,371	146	18,358	12,615	12,932	U S S R . . . . .	...	2) 915	2) 20,362	—	—
<i>Importing Countries:</i>						Canada . . . . .	14,868	9,830	98,518	115,972	—
Germany . . . . .	0	0	88	205	205	United States . . . . .	4) 1,336	4) 15,124	4) 88,033	—	—
Belgium . . . . .	0	0	176	9	18	Argentina . . . . .	6,528	11,367	108,701	225	—
France . . . . .	0	0	2	0	0	Chile . . . . .	...	...	225	4) 223	—
Gr. Brit. and N. Irel. . . . .	2,456	2,778	14,562	12,286	13,492	India . . . . .	55	168	551	—	—
Netherlands . . . . .	406	620	3,999	6,768	7,368	Syria and Lebanon . . . . .	4) 33	33	207	4) 7,214	—
United States . . . . .	412	1,019	8,737	10,029	10,823	Algeria . . . . .	412	794	7,774	4,725	—
Australia . . . . .	7	24	408	315	322	French Morocco . . . . .	240	597	4,557	2,158	—
Tunisia . . . . .	...	...	...	...	...	Tunisia . . . . .	2,989	5,000	64,093	50,651	—
<b>Totals . . . . .</b>						Australia . . . . .	...	...	...	...	—
<b>Imports.</b>						<b>Totals . . . . .</b>	<b>20,049</b>	<b>30,075</b>	<b>316,345</b>	<b>340,389</b>	<b>—</b>
<i>Importing Countries:</i>						<b>b) NET IMPORTS.</b>					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany . . . . .	9,837	16,347	151,105	202,173	218,563	Germany . . . . .	185	891	6,180	5) 6,195	—
Austria . . . . .	569	886	11,345	9,334	10,282	Austria . . . . .	203	386	5,831	25,772	—
Belgium . . . . .	1,631	860	17,851	22,880	24,954	Belgium . . . . .	1,984	2,831	23,839	11,341	—
Bulgaria . . . . .	75	86	789	714	798	Denmark . . . . .	417	692	10,124	11,735	—
Denmark . . . . .	520	866	7,507	8,175	8,468	Irish Free State . . . . .	855	1,098	2,469	2,626	—
Spain . . . . .	1,545	624	22,207	23,960	24,963	Finland . . . . .	196	227	5) 10,137	—	—
Estonia . . . . .	68	66	653	639	644	France . . . . .	267	377	5) 130,549	6,301	—
Irish Free State . . . . .	29	267	2,639	4,228	4,449	Gr. Brit. and N. Irel. . . . .	8,466	8,968	8,728	5,355	—
Finland . . . . .	20	18	231	141	157	Greece . . . . .	1,089	668	5,232	4,996	—
France . . . . .	6,896	5,512	83,159	88,589	94,376	Italy . . . . .	5) 337	359	7,478	5,355	—
Gr. Brit. and N. Irel. . . . .	5,858	2,650	189,362	175,608	176,467	Norway . . . . .	337	359	5,232	4,996	—
Greece . . . . .	212	231	2,635	2,712	2,868	Netherlands . . . . .	1,179	712	11,590	13,510	—
Hungary . . . . .	527	608	7,615	6,175	6,477	Portugal . . . . .	...	...	408	567	—
Italy . . . . .	2,767	891	25,413	17,348	18,470	Sweden . . . . .	5) 5) 5)	5) 721	—	—	—
Latvia . . . . .	110	60	1,144	1,532	1,594	Switzerland . . . . .	6) 692	6) 769	6) 10,748	6) 10,551	—
Lithuania . . . . .	53	15	717	518	545	Czechoslovakia . . . . .	174	2	864	104	—
Norway . . . . .	357	483	6,515	5,245	5,564	<b>Total Europe . . . . .</b>	<b>16,044</b>	<b>17,980</b>	<b>224,788</b>	<b>236,630</b>	<b>—</b>
Netherlands . . . . .	8,144	7,020	125,036	118,622	124,522	United States . . . . .	1,444	5) 3,904	5) 214	—	—
Poland . . . . .	926	1,164	14,963	13,303	14,253	Chile . . . . .	...	...	5) 571	522	—
Portugal . . . . .	...	...	937	970	1,107	Ceylon . . . . .	66	44	12,522	12,551	—
Sweden . . . . .	842	593	11,552	9,138	9,749	China . . . . .	836	240	511	450	—
Switzerland . . . . .	295	547	15,443	16,197	16,455	Indo-China . . . . .	44	37	1,336	2,414	—
Czechoslovakia . . . . .	1,343	1,400	20,580	22,053	23,488	Japan . . . . .	...	...	1,532	1,448	—
Yugoslavia . . . . .	249	130	1,711	1,451	1,537	Java and Madura . . . . .	...	...	5) 858	—	—
Canada . . . . .	1,689	972	24,533	21,508	22,377	Syria and Lebanon . . . . .	7	5) 1,303	130	379	—
United States . . . . .	48,367	24,447	537,916	370,036	412,610	Egypt . . . . .	7	22	538	42	—
Japan . . . . .	183	176	3,142	2,167	2,337	Tunisia . . . . .	...	...	331	214	—
Australia . . . . .	2,381	1,076	14,077	14,359	16,239	Union of S. Africa . . . . .	...	...	...	...	—
New Zealand . . . . .	...	...	3,164	2,282	2,487	New Zealand . . . . .	...	...	...	...	—
<b>Totals . . . . .</b>						<b>Totals . . . . .</b>	<b>18,448</b>	<b>18,323</b>	<b>247,336</b>	<b>255,852</b>	<b>—</b>

\*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333,333 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 31 July. — 2) Data up to 30 June — 3) Data up to 31 May. — 4) See Net Imports. — 5) See Net Exports.

6) Wheat only.

## STOCKS OF CEREALS

Stocks of cereals in farmers' hands in the United States on 1st October.

PRODUCTS	% Stocks total production			Stocks in 1,000 centals		
	1935	1934	1933	1935	1934	1933
Wheat	42.9	46.1	53.9	154,345	137,460	171,198
Oats	81.3	84.4	83.1	307,851	142,812	194,562
Maize (old crop) 1)	5.5	13.1	12.6	33,990	149,374	178,003

1) Data based on maize for grain

## Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
<b>WHEAT</b>					
Canadian in Canada	134,524	105,173	112,073	128,504	136,509
U S in Canada	0	0	0	509	1,868
U S in the United States	47,822	37,497	20,843	72,045	93,991
Canadian in the United States	12,360	11,143	6,304	8,533	3,451
Of other origin in the United States	22	3	469	0	0
Total . . .	194,728	153,816	139,689	219,591	235,819
<b>RYE</b>					
Canadian in Canada	2,178	1,833	1,636	2,251	2,763
U S in Canada	0	0	0	0	0
U S in the United States	4,708	3,954	3,868	6,595	7,262
Canadian in the United States	0	15	16	28	146
Of other origin in the United States	1,243	1,417	1,777	7	0
Total . . .	8,129	7,219	7,297	8,881	10,171
<b>BARLEY</b>					
Canadian in Canada	4,062	1,708	1,632	6,350	5,126
U S in Canada	0	0	0	0	0
U S in the United States	6,681	4,145	2,512	8,517	9,278
Canadian in the United States	60	108	220	198	0
Of other origin in the United States	109	0	172	0	0
Total . . .	10,912	5,961	4,536	15,065	14,404
<b>OATS</b>					
Canadian in Canada . . .	3,789	1,958	2,051	4,037	5,415
U S in Canada	0	0	0	47	330
U S in the United States	13,189	8,193	2,408	8,407	16,271
Canadian in the United States	0	0	0	0	0
Of other origin in the United States	0	0	0	0	0
Total . . .	16,978	10,151	4,459	12,491	22,016
<b>MAIZE</b>					
U S in Canada . . . . .	2	100	233	3,375	4,316
Of other origin in Canada . .	1,257	1,236	1,401	33	267
U S in the United States . .	1,916	3,167	3,149	35,730	33,483
Of other origin in the United States . .	255	956	873	0	0
Total . . .	3,430	5,459	5,656	39,138	38,066

### Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
Wheat (and flour in terms of grain) . . .	14,309	11,136	10,142	19,493	20,722
Rye . . . . .	312	202	254	360	120
Barley . . . . .	3,936	2,380	1,420	2,868	2,812
Oats . . . . .	755	710	358	1,338	291
Maize . . . . .	15,883	16,776	14,549	14,818	14,122

AUTHORITY: *Broomhall's Corn Trade News*

### Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	30,933	27,617	23,396	35,168	19,828
Flour for bread . . . . .	2,524	3,221	2,884	2,756	2,670
TOTAL 1) . . .	34,438	32,090	27,402	38,995	23,536
<b>RYE</b>					
Grain . . . . .	27,935	25,578	21,429	22,827	17,732
Flour for bread . . . . .	1,587	1,956	1,528	2,209	1,572
TOTAL 1) . . .	30,270	28,453	23,676	26,077	20,045
<b>BARLEY</b> . . . . .	5,157	4,180	2,767	5,108	4,105
<b>OATS</b> . . . . .	3,840	3,206	2,235	1,281	1,437

1) Including flour in terms of grain, on the basis of the coefficient. 1,000 centals of wheat flour = 1,388.89 centals of wheat, 1,000 centals of rye flour = 1,470.59 centals of rye

### Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	3 024	3,888	4,656	8,400	7,200
Flour as grain . . . . .	528	600	624	672	720
TOTAL . . .	3,552	4,488	5,280	9,072	7,920
<b>BARLEY</b> . . . . .	1 040	780	580	1,040	900
<b>OATS</b> . . . . .	256	272	330	272	400
<b>MAIZE</b> . . . . .	2,736	2,832	2,256	3,216	3,528

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News*.



# Stocks of wheat in Italy.

LOCATION	Last day of month				
	July 1935	June 1935	May 1935	April 1935	March 1935
	1,000 centals				
Wheat destined for sale by holding pools ("ammassi collettivi"):					
in collective granaries 1) . . . . .	...	0	9	179	983
in granaries of producers or other persons . . . . .	...	0	2	9	99
Total . . . 4)	8,636	0	11	188	1,082
Wheat in general stores and in free zones 2)	6,665	1,942	2,414	3,170	3,931
Wheat in bond in the chief entrepot centres	1,614	1,451	1,709	1,422	886
Wheat in mills and attached elevators 3) .	(5)	1,925	3,014	5,661	6,647
GRAND TOTAL . . . 5)	16,915	5,318	7,148	10,441	12,546

1) Including a small quantity of wheat belonging to holding pools which is stored in general stores. — 2) Not including quantities belonging to holding pools; see previous note. — 3) Provisional figures referring to mills which have a daily capacity of not less than 40 metric quintals — 4) Provisional figure. The provisional figure for 31 August 1935 is 15,953,000 centals. — 5) The figures of wheat in mills will be published only after complete revision of the method of collecting used hitherto.

# Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
WHEAT:					
Antwerp . . . . .	902	420	449	2,087	1,726
Rotterdam . . . . .	512	179	238	1,670	2,389
Amsterdam . . . . .	12	12	0	32	18
RYE:					
Antwerp . . . . .	36	38	61	193	47
Rotterdam . . . . .	61	119	143	187	159
Amsterdam . . . . .	0	0	0	0	0
BARLEY:					
Antwerp . . . . .	180	213	250	397	303
Rotterdam . . . . .	18	30	9	209	198
Amsterdam . . . . .	1	5	13	24	10
OATS:					
Antwerp . . . . .	28	90	71	47	15
Rotterdam . . . . .	3	0	44	57	24
Amsterdam . . . . .	27	32	22	20	30
MAIZE:					
Antwerp . . . . .	101	44	36	725	139
Rotterdam . . . . .	220	66	159	573	88
Amsterdam . . . . .	4	15	26	110	47

1) Imported cereals. See note on p. 306 of the *Crop Report* of April 1934. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: Nederlandsche Silo-, Elevator- en Graanfactor Mij., Amsterdam, and Chamber of Commerce and Industry for Rotterdam, Rotterdam.

## STOCKS OF COTTON

## Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	September 1935	August 1935	July 1935	September 1934	September 1933
	1,000 centals				
In consuming establishments . . . . .	3,487	3,136	3,838	5,139	5,711
In public storage and at compresses . . .	34,792	28,679	27,930	37,064	36,368
<b>TOTAL . .</b>	<b>38,279</b>	<b>31,815</b>	<b>31,768</b>	<b>42,203</b>	<b>42,079</b>

## Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1 000 centals				
Bombay 1) . . . . .	1,804	2,152	2,404	2,864	2,559
Alexandria 2) . . . . .	773	3) 438	541	1,438	1,779

1) Stocks held by exporters, dealers and mills. — 2) From February 1934 quantities consumed in Alexandria or returned to the interior of the country are not included, prior to that date quantities returned to the interior are included — 3) Figure corrected after a revision of the stocks of Achmouni Zagora cotton which, at the end of the season, were 160,000 centals instead of 93,000 centals. See table p. 734.

AUTHORITIES. *East Indian Cotton Ass* and *Commission de la Bourse de Mamel-el-Bassal*.

## Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
<b>Great Britain:</b>					
American . . . . .	643	704	847	1,436	2,163
Argentine, Brazilian, etc. . . . .	184	179	221	972	184
Peruvian, etc. . . . .	330	347	309	529	400
East Indian, etc. . . . .	148	239	213	317	219
Egyptian, Sudanese . . . . .	848	868	982	1,262	884
W. Indian, W. and E. African, Australian . . .	89	126	156	300	296
<b>TOTAL . . .</b>	<b>2,242</b>	<b>2,463</b>	<b>2,728</b>	<b>4,816</b>	<b>4,146</b>
<b>Bremen:</b>					
American . . . . .	437	539	566	1,427	1,967
Other . . . . .	320	433	304	232	121
<b>TOTAL . . .</b>	<b>757</b>	<b>972</b>	<b>870</b>	<b>1,659</b>	<b>2,088</b>
<b>Le Havre:</b>					
American . . . . .	236	233	321	537	786
French colonies . . . . .	20	17	14	37	14
Other . . . . .	85	88	89	99	44
<b>TOTAL . . .</b>	<b>341</b>	<b>338</b>	<b>424</b>	<b>673</b>	<b>844</b>
<b>Total Continent 1).</b>					
American . . . . .	955	1,147	1,293	2,365	3,361
Argentine, Brazilian, etc. . . . .	284	282	214	152	60
E. Indian, Australian, etc. . . . .	164	217	237	176	136
Egyptian . . . . .	110	173	203	114	103
W. Indian, W. African, E. African, etc. . . .	131	196	129	188	76
<b>TOTAL . . .</b>	<b>1,644</b>	<b>2,015</b>	<b>2,076</b>	<b>2,995</b>	<b>3,736</b>

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Ass* and (for Le Havre) *Bulletin de correspondance de la Bourse du Havre*.

## Stocks of cereals belonging to farmers in Germany.

PRODUCTS	% stocks: total production				Stocks in 1,000 centals			
	30 Sept. 1935	30 Sept. 1934	30 Sept. 1933 1)	30 Sept. 1932 1)	30 Sept. 1935	30 Sept. 1934	30 Sept. 1933	30 Sept. 1932
Winter wheat . . . . .	74	72	77	74	69,800	62,700	83,600	71,100
Spring wheat . . . . .	87	82	91	87	7,500	10,600	13,600	12,400
Rye . . . . .	76	74	76	75	126,600	124,100	144,700	136,800
Winter barley . . . . .	58	54	57	48	12,800	8,200	9,000	6,600
Spring barley . . . . .	81	81	81	80	42,100	44,900	49,200	45,700
Oats . . . . .	90	90	91	91	106,600	108,200	139,500	133,400

1) Average between data on 15 September and 15 October.

AUTHORITY: *Marktbereichsstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A.).

## Butter prices in Bois le Duc.

The price of butter sold in the Netherlands consists of the basic price and the consumption tax which changes according to requirements. The relevant information is reproduced in *Government Measures affecting Agricultural Prices*, No. 1, p. 49 to 51 and No. 2, p. 113 to 116 (No. 3 in the Press). The prices at Zutphen have not been published since the beginning of August and they are therefore given here in Netherlands cents per kg.

Date	Average price	Date	Average price
2 August 1935 . . . . .	150	30 August 1935 . . . . .	150
9 " " . . . . .	148	Average August " . . . . .	149
16 " " . . . . .	148	6 September " . . . . .	156
23 " " . . . . .	147	13 " " . . . . .	165

## Egg prices in Roermond.

Prices of white Dutch eggs, 57/58 grs. each, in Roermond, have not been published in the *Crop Report* for some time. The quotations omitted are now given expressed in florins per 100.

Date	Eggs for export into Germany	Eggs for other destinations	Date	Eggs for export into Germany	Eggs for other destinations
26 July 1935 . . . . .	2.95	3.05	23 August 1935 . . . . .	3.90	2.90
2 August " . . . . .	3.60	2.55	30 " " . . . . .	3.90	2.90
9 " " . . . . .	3.60	2.55	6 September " . . . . .	4.10	2.90
16 " " . . . . .	3.90	2.80	13 " " . . . . .	4.10	2.90

## WEEKLY PRICES BY PRODUCTS

(All quotations are, unless otherwise stated, spot. The monthly averages are based on the weekly quotations, and the annual on the monthly.)

DESCRIPTION	18	11	4	27	20	AVERAGE					Commercial Season 1)	
	October	October	October	Sept.	Sept.	Sept.	October	October	October		1934-35	1933-34
	1935	1935	1935	1935	1935	1935	1934	1933				
<b>Wheat.</b>												
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal) . . . . .	18.42	17.95	16.92	16.05	16.15 <sup>11)</sup>	15.85	16.33	7.68			16.67	9.70
Braila: Good quality (lei p. quintal) . . . . .	410	405	415	400	400	395	460	341			420	375
Winnipeg: No. 1 Manitoba (cents p. 60 lb) . . . . .	90 7/8	92 1/8	94 1/8	89 3/4	95 1/8	90 3/4	78 3/8	60 1/8			81 7/8	67 1/8
Chicago: No. 2 Hard Winter (cents p. 60 lb.) . . . . .	122 1/8	123 1/8	126 1/8	121	121 1/8	116 1/8	105 1/8	84			104 1/8	89 1/8
Minneapolis: No. 1 Northern (cents p. 60 lb.) 2) . . . . .	126 3/8	135 3/8	141	136 3/8	138 3/8	135 3/8	111 1/8	83 1/8			110 7/8	89 3/8
New York: No. 2 Hard Winter (cents p. 60 lb.) . . . . .	136 1/8	139 1/8	142 1/8	134	133 7/8	127 1/8	113 3/8	92 1/8			113 3/8	98 3/8
Buenos Aires (a): Barilletta, 80 kg. p. hectol. (paper pesos p. quintal) . . . . .	9.00	9.10	9.40	8.90	9.40	8.64	6.55	5.40			6.86	5.85
Karachi: Karachi white, 2% barley, 1 1/2% impurities (rupees p. 56 lb.) . . . . .	26-10-0	25-6-0	25-2-0	23-11-0	24-5-0	23-1-6	20-11-3	21-15-9			22-5-9	22-2-4
Berlin: Home grown (free at Brandenburg stations; Rm. p. quintal) 3) . . . . .	19.80	19.80	19.80	19.60	19.60	19.60	19.80	18.20			20.29	18.65
Hamburg (c. i. f., Rm. p. quintal): . . . . .												
No. 2 Manitoba 4) . . . . .	10.10	10.35	10.58	9.90	10.45	9.88	8.44	7.35			8.95	7.94
Barusso 5) . . . . .	8.42	8.50	8.59	8.32	8.57	8.00	6.28	6.54			6.50	6.22
Antwerp (francs p. quintal): . . . . .												
Home-grown . . . . .	92.00	92.00	92.00	91.00	88.00	86.50	64.10	58.25			69.10	63.00
No. 1 Manitoba (Atlantic) (in bond) . . . . .	118.00	120.00	115.00	118.00	114.00	112.25	74.85	66.50			86.10	67.65
Barusso (in bond) . . . . .	103.00	104.00	100.00	100.00	94.00	92.25	51.70	54.75			60.90	53.00
Paris: Home-grown (delivery regional depots; 76 kg. p. hl.; frs. p. quintal) 6) . . . . .	81.00	81.00	83.00	84.00	84.00	85.00	111.00	121.00			91.50	125.65
London: Home grown (sh. p. 504 lb.) 7) . . . . .	28/-	28/3	27/6	27/-	25/9	24/3	21/9	20/4 1/2			22/4 1/2	20/10
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.) . . . . .												
French (on sample) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19/11 1/2	n. q.			* 19/8 1/2	n. q.
South Russian (on sample) . . . . .	30/1 1/2	30/9	30/10 1/2	29/6	31/10 1/2	29/4 3/8	n. q.	18/5 1/2			n. q.	* 19/5 1/2
No. 1 Northern Manitoba (Atlantic) . . . . .	34/10 1/2	35/3	35/9	34/1 1/2	35 9	34/0 1/2	30/7 1/2	24/2 1/2			31/7 1/2	26/9
No. 1 Northern Manitoba (Pacific) . . . . .	34/6	35 1/2	35/9 1/2	n. 33 7/2	n. 36/1 1/2	33/11 1/2	30/3	24/7 1/2			31/2 1/2	26/7
No. 3 Northern Manitoba (Pacific) . . . . .	31/10 1/2	32/6	33/9 1/2	n. 31/7 1/2	n. 33/10 1/2	31/4 1/2	27/8 1/2	22/9			28/5 1/2	24/5 1/2
White Pacific . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			n. q.	* 20/5
Rosafé (afloat) 8) . . . . .	n. q.	n. q.	n. 31/6	n. 30/-	n. 31 3	29/-	21/3	18/11			22 3/4	19/5 1/2
Australian . . . . .	31/9	32/1 1/2	32/3	30/9	31/7 1/2	29/10 1/2	26 1/2	22/1			26/1 1/2	23/4
Milan (b): Home-grown, soft, 4 Buono mercantile • 76-78 kg. p. hl (lire p. q.) . . . . .	111.00	111.00	108.50	107.50	109.00	109.00	87.25	81.25			95.80	83.85
Genoa: Sicilian Durum (c. i. f., lire p. quint.) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	109.00	107.75			* 113.05	107.85
Genoa (c. i. f.; U. S. \$ p. quintal): . . . . .												
No. 2 Manitoba (Pacific) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	3.35	2.57			* 3.38	* 2.87
No. 2 Canadian Durum 9) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	4.08	2.68			* 4.09	3.11
Bahla Blanca, 79 kg. p. hl. 10) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	111/6	n. q.			* 111/-	* 93/6
<b>Rye.</b>												
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 3) . . . . .	16.10	16.10	16.10	15.90	15.90	15.90	15.80	14.70			16.29	15.34
Hamburg (c. i. f.; Rm. p. quintal): Plata, 72-73 kg p. hl. . . . .	5.22	5.38	5.30	5.21	5.38	4.91	6.28	4.85			5.76	4.76
Budapest: Pest rye (pengo p. quintal) . . . . .	16.05	15.70	14.55	14.15	14.15 <sup>11)</sup>	14.00	12.06	4.17			12.08	5.24
Warsaw: Good quality (zloty p. quint.) . . . . .	13.12	13.12	12.87	12.50	13.75	12.87	17.00	14.50			14.82	14.32
Winnipeg: No. 2 (cents p. 56 lb.) . . . . .	41 1/8	44	45 1/8	41 7/8	43 1/8	40 1/8	56	41 1/8			52 1/8	47 1/8
Minneapolis: No. 2 (cents p. 56 lb.) . . . . .	50 1/2	52 1/8	56 1/8	49 7/8	50 1/8	47 1/8	75 1/8	60 1/8			67 1/8	63
Groningen (c): Home-grown (fl. p. quint.) . . . . .	6.70	6.82	6.80	6.85	6.80	6.63	7.13	6.98			7.35	6.65

\* Indicates that the product during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices. — c) Prices of preceding Tuesday.

1) August-July. — 2) From 9 Aug. 1935, No. 1 Dark Northern Spring. — 3) 1 Oct. 1933-15 Aug. 1934, for wheat, and 1 Oct. 1933-15 July 1934, for rye: minimum prices; subsequently, fixed producers' prices for the price region of Berlin city. See Government Measures, No. 2, p. 57. — 4) From Nov. 1934, No. 1 Manitoba. — 5) Year 1933, 79 kg. p. hl.; subsequently, 80 kg. — 6) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations. For the regulations on milling see Government Measures, No. 2, pp. 69-73. — 7) From Aug. 1933, prices on the farm. — 8) Aug.-Oct. 1933, 63 1/2 lb. p. bushel; Nov.-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 1/2 lb. — 9) From Dec. 1934, No. 1. Can. Dur. — 10) From Feb. 1934, prices in sh. p. 1000 kg. — 11) 13 Sept.: 15 50; 6 Sept.: 15 72; Aug. aver. (revised): 15.49; July aver. (revised): 15.45. — 12) Price of the preceding day. — 13) New crop. — 14) Parcels from Port Churchill: 33 7/8. — 15) 13 Sept.: 13.75; 6 Sept.: 14.00; Aug. aver. (revised): 14.19; July aver. (revised): 11.22.

DESCRIPTION	18	11	4	27	20	AVERAGE					Commercial	
	October	October	October	Sept.	Sept.	Sept.	October	October			Season 1)	
	1935	1935	1935	1935	1935	1935	1934	1933			1934-35	1933-34
<b>Barley.</b>												
Warsaw: Malting, good quality (zloty p. quintal) . . . . .	17.00	17.00	17.00	16.50	16.50	15.81	21.87	15.75			19.60	* 15.87
Braila: Average quality (lei p. quintal) . . . . .	250	250	265	260	265	244	270	114			* 246	* 154
Prague: Malting, av. qual. (cra. p. quintal) 2) . . . . .	128.00	128.00	128.00	126.50	126.50	126.50	128.00	89.75			131.70	* 94.20
Winnipeg: No. 4 Western (cents p. 48 lb.) . . . . .	31 1/4	32 1/4	34 1/4	33 1/4	35 1/4	33 1/4	54	30 1/4			45 1/4	36 1/4
Chicago: Feeding (on sample; cents p. 48 lb.) . . . . .	48	48	42	46	46	45 1/4	79 1/4	46 1/4			72 1/4	54
Minneapolis: No. 2 Feeding (c. p. 48 lb.) . . . . .	39	40	42	41	41	40 1/4	73 1/4	43 1/4			67 1/4	45 1/4
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3) 4) . . . . .	16.40	16.40	16.40	16.20	16.20	16.20	15.70	16.22			16.16	* 16.17
Antwerp: Danubian (in bond; francs p. q.) . . . . .	75.00	75.00	73.50	75.00	73.00	72.25	70.85	38.75			69.45	49.35
London: English malting, best quality (sh. p. 448 lb.) 5) . . . . .	43/-	43/-	43/-	43/-	43/-	43/-	43/6	44/4 1/4			38/-	* 39/5 1/4
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.): . . . . .												
Danubian, 3 % impurities . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. 22/-	12/3 1/4			* 19/2 1/4	* 13/9 1/4
Russian (Azoff, Black Sea) . . . . .	15/1 1/4	15/9	15/10 1/4	15/6	16/1 1/4	15/4 1/4	n. q.	12/4 1/4			n. q.	* 13/7 1/4
No. 3 Canadian Western . . . . .	16/8 1/4	17/-	17/6	17/1 1/4	17/7 1/4	16/10 1/4	22/9	15/7 1/4			21/10 1/4	17/9 1/4
Californian malting (sh. p. 448 lb.) . . . . .	25/6	26/-	25/7 1/4	n. q.	21/6	* 21/-	n. 35-6	26/3			* 31/6	22/7 1/4
Plate (64-65 kg. p. hl) . . . . .	15/6	16/-	16/6	16/-	17/1 1/4	15/10	10/20/2 1/4	13/2			18/4	14/2 1/4
Persian . . . . .	15/6	15/9	16/-	15/7 1/4	16/-	15/4	21/2 1/4	n. q.			18/6	* 14/0 1/4
Groningen a): Home grown, winter (fl.p.q.) . . . . .	4.92	5.00	4.92	4.92	4.92	4.58	5.43	4.56			5.30	4.44
<b>Oats.</b>												
Braila: Good quality (lei p. quintal) . . . . .	320	320	290	290	290	277	n. q.	n. 128			n. q.	* 148
Winnipeg: No. 2 White (cents per 34 lb.) . . . . .	33 1/4	34 1/4	35 1/4	35 1/4	36 1/4	36 1/4	41 1/4	29 1/4			42 1/4	33 1/4
Chicago: No. 2 White (cents per 32 lb.) . . . . .	31 1/4	33	34 1/4	34 1/4	33 1/4	32 1/4	54 1/4	32 1/4			50 1/4	37 1/4
Buenos Aires b): Current quality (paper pesos p. quintal) . . . . .	6.50	6.85	7.00	7.30	7.60	7.17	5.41	3.59			5.39	3.65
Berlin: Home grown (free at Brandenburg stations; Rm. p. quint.) 3) . . . . .	16.00	16.00	16.00	15.80	15.80	15.80	15.90	14.10			16.39	14.92
Paris: Home grown, black and other (delivery regional depots; frs. p. quintal) . . . . .	54.25	52.40	51.75	49.25	50.50	48.95	54.25	49.65			48.50	48.00
London: Home grown white (sh. p. 336 lb.) 5) . . . . .	19/6	19/6	19/6	19/6	19/6	19/1 1/4	20/-	17/-			20/10	18/1 1/4
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.): . . . . .												
Canadian, No. 2 Western (Pacific 6) . . . . .	18/3	18/9	18/10 1/4	18/6	n. q.	* 18/4	21/0 1/4	n. q.			20/10 1/4	* 17/4
Plate (f. a. q.) . . . . .	17/-	17/4 1/4	17/9	16/10 1/4	17/6	16/4 1/4	12/11	11/4 1/4			13/0 1/4	10/2
Milan (c) (lire p. quintal): . . . . .												
Home grown . . . . .	99.00	99.00	99.00	99.00	99.00	98.75	57.50	50.00			61.25	50.70
Foreign . . . . .	93.50	93.50	91.50	n. q.	n. q.	n. q.	57.50	47.50			60.45	50.05
<b>Maize.</b>												
Braila: Average quality (lei p. quintal) . . . . .	220	230	230	235	240	231	n. 203	169			* 223	* 173
Chicago: No. 3 Yellow (cents p. 56 lb.) . . . . .	87	87 1/4	87 1/4	84 1/4	85 1/4	83 1/4	* 78	38 1/4			78 1/4	46 1/4
Buenos Aires (b): Yellow Plata (paper pesos p. quintal) . . . . .	4.52	4.60	4.72	4.45	4.87	4.53	6.38	3.49			5.72	4.26
Antwerp (in bond; francs p. quintal): . . . . .												
Yellow Plata . . . . .	57.50	57.00	55.00	58.75	56.00	55.00	51.00	43.00			53.70	48.35
Cinquantino (Argentine "Cuarentino") . . . . .	61.50	63.50	62.00	64.00	58.00	58.10	56.75	48.35			58.25	58.00
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.): . . . . .												
Danubian . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	21/9	* 17/1			* 20/-	16/9 1/4
Yellow Plata . . . . .	16/9	16/10 1/4	17/3	16/-	17/-	15/11 1/4	20/8 1/4	14/11 1/4			19/8 1/4	16/7
No. 2 White flat African . . . . .	17/6 1/4	17/7 1/4	17/6 1/4	16/6	17/4 1/4	16/5 1/4	23/1 1/4	n. q.			21/4 1/4	n. q.
Milan (c): "Alto Milanese" (lire p. quint.) . . . . .	81.50	81.50	78.50	77.50	83.50	80.25	49.50	44.00			58.50	58.80

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Prices of preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for deliver Prague. From August 1935, good quality, not less than 68 kg. per hectoliter. — 3) From 16 July 1934 for fodder barley, and from 1 August 1934 for oats, fixed producers' prices for the price region of Berlin city. See *Government Measures*, No. 2, p. 57. — 4) Sept. 1933-June 1934, spring barley, average quality. — 5) From Aug. 1933, prices on the farm. — 6) June-Dec. 1934 and from May 1935, Atlantic. — 7) New crop. — 8) Shipping October. — 9) Shipping Nov.-Dec. — 10) New crop; shipping Jan.-Feb. — 11) 6 Sept. (revised): 79 1/4. — 12) Shipping Oct.-November.

DESCRIPTION	18	11	4	27	20	AVERAGE					Commercial	
	Oct.	Oct.	Oct.	Sept.	Sept.	Sept.	Oct.	Oct.			Season 1)	
	1935	1935	1935	1935	1935	1935	1934	1933			1934	1933
<b>Rice (milled).</b>												
Valencia (a): No. 3 Belloch (pesetas p. quintal) . . . . .	56.50	54.50	54.50	54.50	54.50	55.50	49.65	44.25			46.95	43.10
Milan (b) (lire p. quintal): . . . . .												
Vialone, oiled . . . . .	166.00	157.00	152.50	152.50	152.50	153.00	149.50	174.25			177.10	198.20
Maratelli, oiled . . . . .	146.00	142.50	138.50	137.50	140.00	138.00	126.50	122.00			138.05	139.90
Originario, white . . . . .	128.00	127.50	126.00	128.00	133.50	132.35	98.35	83.75			102.80	95.50
Bangkok: No. 2 Burma (rupees p. 7500 lb.) . . . . .	280	<sup>a)</sup> 277 1/2	270	270	265	262 1/2	246 1/2	185			201 1/2	194 1/2
Saigon (Indo-chinese piastres p. quintal): . . . . .												
No. 1 Round white, 25 % broken . . . . .	...	...	...	4.56	4.66 <sup>a)</sup>	4.40	3.46	3.69			3.25	4.08
No. 2 Japan, 40 % broken . . . . .	...	...	...	4.32	4.37 <sup>a)</sup>	4.12	3.30	3.50			3.09	3.90
Marseilles (a): No. 1 Saigon (c. i. f.; frs. p. quintal) . . . . .	65 00	66 00	66 00	68 00	60 00	63.25	48.50	50.75			45.95	53.10
London (a) (c. i. f.; shillings p. cwt.): . . . . .												
No. 3 Spanish Belloch, oiled . . . . .	<sup>a)</sup> 12/3	<sup>a)</sup> 11/10 1/2	<sup>a)</sup> 11/10 1/2	<sup>a)</sup> 11/7 1/2	<sup>a)</sup> 11/10 1/2	<sup>a)</sup> 12/2	n. c.	13/6			*10/9	12/5 1/2
No. 6 Italian good, oiled . . . . .	n. q.	n. q.	n. q.	n. q.	n. c.	n. c.	<sup>a)</sup> 12/7 1/2	9/4 1/2			11/10 1/2	11/2 1/2
American Blue Rose, extra fancy . . . . .	<sup>a)</sup> 15/9	<sup>a)</sup> 14/1 1/2	<sup>a)</sup> 13/10 1/2	<sup>a)</sup> 13/7 1/2	<sup>a)</sup> 13/10 1/2	<sup>a)</sup> 13/9 1/2	<sup>a)</sup> 17/8 1/2	19/6			17/3 1/2	16/9 1/2
No. 2 Rangoon or Bassein (Burma) . . . . .	8/10 1/2	8/7 1/2	8/4 1/2	8/6 1/2	8/4 1/2	8/1	8/0 1/2	6/3 1/2			6/7 1/2	6/6 1/2
No. 1 Saigon . . . . .	8/3	8/4 1/2	8/4 1/2	8/3	8/4 1/2	7/10 1/2	6/10 1/2	6/8 1/2			6/3 1/2	6/9 1/2
Siam Super, white . . . . .	9/9	10/4 1/2	10/-	9/11 1/2	10/-	9/9	8/1	8/-			7/5	8/1 1/2
Tokyo: Chumai (brown Japanese, average quality, yen p. koku) . . . . .	31.20	31.20	31.70	31.60	31.70	31.67	30.30	20.72			26.09	21.62
<b>Linseed.</b>												
Buenos Aires (a): Current quality (paper pesos p. quintal) . . . . .	13.25	13.65	13.85	13.85	13.55	12.99	12.65	9.91			12.74	10.56
Antwerp: Plate (in bond, frs. p. quint.) . . . . .	152.50	155.00	151.00	148.00	140.00	141.00	107.00	108.25			107.60	111.70
London (c. i. f.; £ p. long ton): . . . . .												
Plate (delivery Hull) . . . . .	10-8-9	10-17-6	11-0-0	n 10-10-0	n 10-0-0	n. 9-16-3	10-0-11	9-16-10			10-0-8	9-11-11
Bombay bold . . . . .	13-5-0	13-3-9	13-5-0	13-1-3	12-17-6	12-7-6	11-8-9	11-1-3			11-17-0	11-5-4
Duluth: No. 1 Northern (quotations of terminal market, cents p. 56 lb.) . . . . .	<sup>a)</sup> 175	<sup>a)</sup> 174	<sup>a)</sup> 176 1/2	174 1/2	172 1/2	165 1/2 <sup>a)</sup>	184 1/2 <sup>a)</sup>	174 1/2 <sup>a)</sup>			186 1/2	156 1/2
<b>Cotton seed.</b>												
Alexandria (piastres p. ardeb): . . . . .												
Upper Egypt . . . . .	65.3	67.1	61.7	61.9	61.1	63.2	45.8	39.9			62.0	41.8
Sakellaris . . . . .	62.3	63.9	58.5	57.7	56.3	58.2	43.3	36.2			57.7	37.5
London: Sakellaris (c. i. f., delivery Hull; £ p. long ton) . . . . .	n. 6-6-3	n. 6-13-9	n. 7-5-0	n. 6-2-6	n. 6-0-0	n. 6-4-4	4-13-9	4-2-6			5-18-7	4-5-11
<b>Cotton.</b>												
New Orleans: Middling (cents p. lb.) . . . . .	11.12	11.06	11.20	10.68	10.83	10.69	12.62	9.22			12.47	10.90
New York: Middling (cents p. lb.) . . . . .	11.25	11.20	11.35	10.75	10.95	10.80	12.52	9.52			12.46	11.07
Bombay: M. g. Broach f. g. (terminal market quotations; rup. p. 784 lb.) . . . . .	<sup>a)</sup> 215	<sup>a)</sup> 214	<sup>a)</sup> 218	<sup>a)</sup> 205	<sup>a)</sup> 206	<sup>a)</sup> 200 1/2	<sup>a)</sup> 209 1/2	<sup>a)</sup> 189 1/2			230 1/2	197
Alexandria (talars p. kantar): . . . . .												
Sakellaris, f. g. f. . . . .	n. 15.00	14.65	14.65	14.45	14.35	14.32	14.44	12.49			15.20	14.44
Ashmuni-Zagora, f. g. f. . . . .	12.05	12.30	12.17	12.00	n. 12.00	11.99	12.66	10.56			13.34	11.63
Bremen: Middling (U. S. cents p. lb.) . . . . .	13.26	13.39	13.40	13.08	13.23	13.02	14.34	10.76			14.38	12.56
M. g. Broach, f. g. (pence p. lb.) . . . . .	n. 6.40	n. 6.30	n. 6.45	n. 6.15	n. 6.15	n. 6.00	n. 5.42	n. 4.34			n. 6.04	n. 4.81
Le Havre: Middling (Gulf; frs p. 50 kg.) . . . . .	236.00	233.00	235.00	222.50	227.00	222.85	250.25	212.50			250.75	229.85
Liverpool (pence per lb): . . . . .												
Middling, fair . . . . .	n. 7.40	n. 7.50	n. 7.59	n. 7.40	n. 7.53	n. 7.30	7.98	n. 6.61			n. 7.95	n. 7.11
Middling . . . . .	6.40	6.50	6.59	6.40	6.53	6.30	6.93	5.48			6.94	6.02
São Paulo, g. f. . . . .	6.70	6.75	6.74	6.55	6.68	6.45	6.88	5.81			6.99	6.13
C. P. Comfa, superfine . . . . .	5.71	5.74	5.70	5.37	5.44	5.27	5.13	4.73			5.73	4.92
M. g. Broach, f. g. . . . .	5.62	5.65	5.63	5.30	5.37	5.20	5.12	n. 4.40			5.61	4.62
Egyptian Sakellaris, f. g. f. . . . .	8.88	8.67	8.70	8.52	8.42	8.29	8.17	7.12			8.52	8.07
Upper Egyptian, f. g. f. . . . .	6.93	7.14	7.38	7.19	7.42	7.21	7.15	6.22			7.55	6.64

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal.  
— a) Thursday prices. — b) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Price of 12 Oct. — 3) 13 Sept.: 4.22; 6 Sept.: 4.14. — 4) 13 Sept.: 3.90; 6 Sept.: 3.91. — 5) New crop. — 6) December futures. — 7) April-May futures.

DESCRIPTION	18	11	4	27	20	AVERAGE *			Commercial Season	
	October	October	October	Sept.	Sept.	Sept.	October	October		
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Bacon.</b>										
London, Provision Exchange (a) (shill. p. cwt.):										
English, No 1, lean sizable. . . . .	95/-	95/-	89/6	90/-	85/-	85/3	86/3	...	91/2	...
Danish, No 1, sizable. . . . .	95/-	95/-	89/-	89/-	85/-	85/-	86/9	76/6	87/11	74/5
Irish, No 1, sizable. . . . .	94/-	95/-	89/-	89/-	84/6	84/-	86/1	80/3	90/5	83/4
Lithuanian, No 1, sizable. . . . .	92/-	92/-	86/-	86/-	81/-	80/9	81/-	68/3	82/-	65/5
Dutch, No 1, sizable. . . . .	94/-	94/-	87/-	87/-	82/-	82/3	83/-	69/-	84/-	67/6
Polish, No 1, sizable. . . . .	90/-	90/-	84/-	84/-	79/-	78/9	80/-	67/-	80/11	63/10
Swedish, No 1, sizable. . . . .	94/-	94/-	87/-	87/-	82/-	81/9	82/6	73/6	84/4	70/-
Canadian, No 1, sizable. . . . .	90/-	90/-	84/-	84/-	79/-	78/9	80/7	68/-	80/3	64/6
<b>Butter.</b>										
Copenhagen (b): Danish (crs. p. quint.) . .	246.00	236.00	230.00	230.00	230.00	225.00	189.00	191.75	160.75	171.00
Leeuwarden, Commission for butter quotations (b): Dutch (cents p.kg.) . . .	71	65	58	58	58	58	43	68	44 3/4	60
Zutphen, auction: Dutch (price for home consumption; cents p. kg.) 1) . . .	163	162	155	155	155	157 3/4	146	162	147 1/4	159 3/4
Germany (c) (fixed prices; Rm. p. 50 Kg.) 2):										
Butter with quality mark . . . . .	130.00	130.00	130.00	130.00	130.00	130.00	131.00	128.69	129.04	112.72
Creamery butter . . . . .	123.00	123.00	123.00	123.00	123.00	123.00	122.00	123.00	120.87	106.25
London (d): English creamery, finest quality (shillings p. cwt.) . . . . .	140/-	140/-	140/-	135/4	135/4	132/2	106/10	144/8	109/6	140/10
London, Provision Exchange (a) (shill. p. cwt.):										
Danish creamery, unsalted. . . . .	136/-	132/-	129/-	129/-	129/-	126/3	111/4	111/9	98/8	103/9
Estonian, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	61/10	90/2	* 67/11	* 84/4
Latvian, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	61/9	90/6	* 69/3	* 82/9
Dutch creamery, unsalted . . . . .	123/-	111/-	105/6	105/6	106/6	101/7	71/-	115/6	80/4	103/4
Argentine, finest, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	96/8	* 68/3	* 77/10
Siberian, salted . . . . .	n. q.	119/-	109/6	102/-	98/6	99/1	62/1	82/9	* 66/-	* 73/5
Australian, finest, salted. . . . .	123/6	123/-	116/6	114/6	110/-	109/10	67/-	97/-	70/2	80/-
New Zealand, finest, salted . . . . .	123/-	124/-	117/6	115/6	110/6	110/3	67/-	96/10	72/7	81/1
<b>Cheese.</b>										
Milan (lire p. quintal):										
Parmigiano-Reggiano, 1st quality, production 1933 3) . . . . .	765.00	765.00	765.00	765.00	765.00	746.25	760.00	1,050.00	724.30	989.00
Parmigiano - Reggiano, 1st quality, production 1934 3) . . . . .	700.00	705.00	705.00	705.00	705.00	687.50	622.50	865.00	614.60	806.00
Green Gorgonzola, mature, choice . . .	550.00	575.00	575.00	575.00	570.00	568.75	415.00	425.00	412.60	473.70
Rome: Roman Pecorino, choice (lire p. q)	*1,075.00	*1,075.00	*1,075.00	*1,025.00	875.00	912.50	662.00	847.00	658.65	1,029.00
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese-mark) factory cheese, small (florins p. 50 kg.) . . .	23.00	23.00	24.00	28.00	23.50	22.50	20.62	21.75	20.98	22.40
Gouda: Gouda 45 + (whole milk cheese, with the country's cheese-mark) home made (florins p. 50 kg.) . . . . .	27.00	27.50	27.50	28.50	24.00	24.25	24.62	26.87	22.52	26.59
Kempton (c) (Rpf. p. 1/2 kg.):										
Soft cheese, green, 20 % butterfat . .	26	26	26	26	26	26	26	23 1/2	23 1/4	20 1/4
Emmenthal from the Allgäu, whole milk cheese, 1st quality . . . . .	77	77	77	77	77	77	72 1/4	71	71 1/4	72 1/4
London, Provision Exchange (a) (shill. p. cwt.):										
English Cheddar, finest farmers . . . .	65/-	65/-	65/-	65/-	63/6	63/10	85/-	81/6	* 83/5	86/3
English Cheshire, Nat. Mark Selected .	81/8	77/-	70/-	81/8	79/4	78/9	83/5	115/2	83/4	94/4
Italian Gorgonzola (d). . . . .	109/8	110/10	110/10	110/10	110/10	109/11	81/8	84/-	82/9	85/3
Dutch Edam, 40 + (d) . . . . .	59/6	61/6	67/6	65/6	55/6	55/10	51/-	62/8	54/5	59/8
Canadian, finest white . . . . .	*) 61/-	*) 61/-	*) 59/6	*) 58/-	*) 55/6	*) 55/1	51/3	52/7	54/-	59/8
New Zealand, finest white. . . . .	61/3	61/3	59/3	58/3	55/3	54/9	49/3	48/11	46/5	46/10

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal —  
a) Average prices of Thursday and Friday morning. — b) Thursday prices. — c) Wednesday prices. — d) Average prices for the week.

1) See note on page 831. — 2) See note on page 306 of the *Crop Report* of April 1934. — 3) Prices of 1933-cheese are compared for the preceding years with those of cheese made in 1932 and in 1931 respectively; prices of 1934-cheese with those of cheese made in 1933 and 1932. The yearly averages refer to periods from Sept. to August. — 4) New make.

DESCRIPTION	18	11	4	27	20	AVERAGE						
	Oct.	Oct.	Oct.	Sept	Sept.	Sept.	Oct.	Oct.	Commercial			
	1935	1935	1935	1935	1935				Season 1)	Season 2)		
						1935	1934	1933	1934	1933		
Eggs.												
Antwerp, auction: Belgian, average qual. (frs. p. 100) . . . . .	83.00	77.00	68.00	62.00	62.00	58.75	68.50	73.00	42.80	48.40		
Denmark (a): Danish for export (crs. per quintal) . . . . .	...	146.00	136.00	136.00	136.00	123.60	150.00	155.00	103.60	105.85		
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100) 2):												
Fixed price for export into Germany .	4.80	4.40	4.40	4.10	4.10	*) 4.10	5.32	5.17	3.96	3.48		
Price for other destinations . . . . .	4.40	4.40	4.30	4.00	3.30	*) 3.27	4.25	5.17	3.34	3.48		
Warsaw (b): Polish, average weight 50 gr. each, different colours (zloty p. 1440, including box) . . . . .	128.00	122.67	108.33	104.17	100.00	96.87	116.19	129.80	106.50	123.60		
Berlin (c): German, big, new laid (Rm. p. 100):												
marked «GIS», 65 gr. each . . . . .	11.50	11.50	11.50	11.50	11.50	11.50	11.06	12.00	10.37	10.41		
marked «GIB», 55/60 gr. each . . .	10.00	10.00	10.00	10.00	10.00	10.00	10.00	11.14	9.03	9.05		
London, Egg Exchange (d) (sh. p. great hundred):												
English, National mark, specials . . .	18/6	18/6	17/6	17/6	19/6	18/7 1/2	20/1 1/2	19/9 1/2	15/5	15/10 1/2		
Belgian, 15 1/2 lb. p. 120 . . . . .	13/3	12/1 1/2	11/1 1/2	10/10 1/2	10/10 1/2	10/8 1/2	n. q.	*12/11	*11/0 1/2	*11/1		
Danish, 18 lb. p. 120 . . . . .	14/10 1/2	13/7 1/2	13/1 1/2	13/-	13/1 1/2	12/10 1/2	15/3	14/10 1/2	12/5 1/2	12/9 1/2		
Northern Irish, 18 lb. p. 120 . . . . .	18/-	18/-	17/6	17/-	17/9	17/5 1/2	17/4	19/8 1/2	*12/9 1/2	15/1		
Dutch, all brown, 18 lb. p. 120 . . . .	16/6	16/1 1/2	15/3	14/4 1/2	13/11	14/2 1/2	15/11 1/2	*17/10	13/5	*14/10 1/2		
Polish, 51/54 grams each 3) . . . . .	8/3	7/10 1/2	7/8 1/2	7/6	7/6	7/5 1/2	7/9	8/1 1/2	6/10 1/2	*7/4 1/2		
Chinese, violet . . . . .	9/6	9/6	9/3	9/3	9/-	9/0 1/2	8/6	9 3 1/2	*8/3 1/2	*9/10		
Australian, 16 lb. p. 120 . . . . .	13/1 1/2	12/10 1/2	12/-	n. q.	n. q.	n. q.	12/1 1/2	11/10	*11/5 1/2	*12/4 1/2		
Maritime freights												
(RATES FOR ENTIRE CARGOES).												
Shipments of Wheat and Maize.												
Danube to Antwerp/Hamburg. } (shill. per	n. q.	n. 14/6	14/6	14/-	14/-	*14/-	n 13/9	14/3	*13/11	*14/1		
Black Sea to Antwerp/Hamb. } long ton)	10/6	10/-	10/-	9/9	9/9	9/9	10/-	10/9 1/2	*9/11	10/3		
St. John to Liverpool 4) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*1/6	*1/11		
Port Churchill to United Kingdom . . . . .	n. q.	n. q.	2/9	n. q.	n. q.	n. q.	n. 2/9	n. q.	*2/9	*2/9		
Montreal to United Kingdom } (shill. per	1/7 1/2	1/7 1/2	1/6	1/6	1/6	1/6	1/8 1/2	1/6	*1/6 1/2	*1/4 1/2		
Gulf to United Kingdom 4) . . . . .	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6	*2/6 1/2		
New York to Liverpool 4) . . . . .	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6		
Northern Range to U.K./Cont. )	2/-	2/-	1/6	1/6	1/6	1/6	n. q.	n. q.	n. q.	*1/9		
North Pacific to United Kingdom (sh. per long ton) . . . . .	19/6	19/6	n. 19/-	17/-	17/-	17/-	n. 20/6	n. 18/6	*18/1 1/2	*20/1		
Vancouver to Yokohama 4) (U.S.A. \$ p. short ton) 5) . . . . .	...	...	...	...	...	...	2.93	2.15	...	2.41		
La Plata Down River 6) /Bahia Blanca to U. K./Continent . . . . .	*) 16/6	*) 16/6	*) 16/6	*) 15/9	*) 15/9	*) 15/9	15/3	12/9 1/2	14/11	14/1		
La Plata Up River 7) /Necochea to U.K./Continent . . . . .	*) 17/9	*) 17/9	*) 17/9	*) 17/-	*) 17/-	*) 17/-	16/1 1/2	14/1 1/2	16/2	15/9		
Western Australia to U. K./Continent . . . . .	*) 24/6	*) 24/6	*) 24/6	*) 24/6	*) 24/6	*) 24/6	27/4 1/2	*23/8	24/6	23/10 1/2		
Shipments of Rice.												
Saigon to Europe . . . . . (shill. per	24/9	24/9	24/6	24/-	23/-	23/-	27/3	n. 23/-	24/2 1/2	23/5 1/2		
Burma to U. K./Continent . . . long ton)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*23/3	*23/1 1/2		

\* Indicates that the product, or the maritime freight, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Average prices for weeks commencing on Fridays indicated. — b) Average prices for weeks commencing on preceding Mondays. — c) Prices Thursday to Saturday of each week. — d) Prices of preceding Monday.

1) Shipments of wheat and maize: Aug. — July. — 2) See note on p. 307 of the *Crop Report* of April 1934. — 3) From Nov. 1933, 52/52 grams each. — 4) Rates for parcels by liners. — 5) May-Oct. 1934 and from 25 Jan. 1935, Canadian \$. 6) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 7) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 8) See note on p. 831 — 9) Minimum rates.



AVERAGE MONTHLY PRICES BY COUNTRIES <sup>1)</sup>

GROUPS	DESCRIPTION	AVERAGE							Agricultural year 2)	
		Sept.	August	July	April-June	July-Sept.	July-Sept.	1934-35	1933-34	
		1935	1935	1935	1935	1934	1933			
GERMANY (Prices in Reichsmarks per quintal)										
A I	†Wheat (Berlin) 3) . . . . .	19.60	19.96	20.80	20.77	19.53	17.99	20.18	18.58	
	†Rye (Berlin) 3) . . . . .	15.90	15.70	16.80	16.77	15.70	14.52	16.22	15.26	
	†Barley, feeding (Berlin) 3) 4) . . . . .	16.20	16.00	16.35	16.67	* 15.45	* 15.27	* 16.14	16.17	
	†Oats (Berlin) 3) . . . . .	15.80	16.90	16.50	16.87	16.24	13.70	16.43	14.62	
	§Red potatoes (Berlin) . . . . .	4.30	5.74	*) 10.72	4.80	* 5.63	* 2.06	* 4.95	* 3.04	
A II	†Oxen, live weight (Berlin) . . . . .	84.00	83.40	82.60	81.53	70.07	67.73	76.28	64.67	
	Calves, live weight (Berlin) . . . . .	106.60	92.20	84.60	78.80	65.07	71.07	68.75	68.63	
	†Pigs, (220-265 lb.), live weight (Berlin) . . . . .	103.00	102.80	99.40	91.13	92.80	83.47	93.87	85.03	
	Milk, fresh (Berlin) . . . . .	14.50	14.50	14.50	14.50	14.50	13.85	14.50	14.07	
	†Butter with quality mark . . . . .	260.00	260.00	260.00	260.00	259.50	243.82	260.12	253.54	
	†Cheese, Emmenthal variety (Kempten) . . . . .	154.00	154.00	154.00	151.83	142.00	143.08	146.75	142.25	
	†Fresh eggs (Berlin) (per 100) . . . . .	11.50	11.50	10.20	9.00	9.68	9.87	10.27	10.78	
B I	Basic slag (Anchen) 5) . . . . .	0.240	0.240	0.240	0.223	0.265	0.265	0.240	0.254	
	§Superphosphate of lime 18 % (Hildesheim) 5) . . . . .	0.314	0.314	0.303	0.309	0.314	0.308	0.309	0.316	
	§Potash salts 38-42 % (mine stations) 5) . . . . .	*) 6.65	*) 6.65	*) 6.65	*) 6.55	0.170	0.169	*) 6.70	0.167	
	Sulphate of Ammonia 5) . . . . .	...	...	...	0.710	0.630	0.630	0.676	0.676	
	Nitrate of lime 5) . . . . .	...	...	...	0.990	0.920	0.920	0.952	0.952	
B II	Wheat bran (Hamburg) . . . . .	12.28	12.32	12.32	12.30	12.17	9.21	12.13	11.06	
	Linseed cake (Hamburg) . . . . .	17.30	17.30	15.30	15.30	16.59	15.33	15.62	16.67	
	Coconut cake (Hamburg) . . . . .	17.40	17.40	15.30	15.30	15.91	15.25	15.44	16.58	
	Groundnut cake (Hamburg) . . . . .	16.90	16.90	14.50	14.50	15.17	15.12	14.66	15.89	
	Crushed soya extraction residue (Hamburg) . . . . .	15.50	15.50	13.00	13.00	13.79	13.60	13.19	14.49	
BELGIUM (Prices in Belgium francs per quintal)										
A I	Wheat (Antwerp) . . . . .	86.50	79.60	80.35	80.65	71.00	76.65	68.60	63.90	
	Rye (Antwerp) . . . . .	70.00	69.30	75.75	78.30	68.35	48.67	70.65	45.75	
	Barley (Antwerp) . . . . .	77.50	77.80	89.00	96.95	71.00	59.15	82.45	58.45	
	Oats (Antwerp) . . . . .	81.10	85.60	98.40	95.95	69.60	66.90	76.25	60.95	
A II	Oxen, live weight (Curegem-Anderelecht) . . . . .	468.00	469.00	473.00	477.00	484.00	519.00	457.00	503.00	
	Calves, live weight (Curegem-Anderelecht) . . . . .	718.00	712.00	655.00	601.00	635.00	671.00	641.00	733.00	
	Pigs, live weight (Curegem-Anderelecht) . . . . .	730.00	660.00	592.00	493.00	439.00	570.00	530.00	496.00	
	Butter (Antwerp) . . . . .	2,042.00	1,804.00	1,589.00	1,586.00	1,878.00	2,050.00	1,782.00	1,875.00	
	Eggs (Antwerp) (per 100) . . . . .	58.75	54.00	44.25	32.60	42.45	44.00	42.80	45.95	
B I	Basic slag (Brussels) 5) . . . . .	1.49	1.50	n. 1.52	* n.1.60	1.35	1.70	1.35	1.55	
	Superphosphate of lime (Brussels) 5) . . . . .	*) 1.60	*) 1.60	* 1.65	1.68	1.55	1.85	1.50	1.83	
	Sylvinite-Kainite, 14 % (Brussels) . . . . .	24.00	23.50	* 15.00	15.00	16.65	24.90	14.65	25.00	
	§Nitrate of soda, 15 ½ % (Brussels) . . . . .	99.25	97.75	97.75	97.75	89.25	90.65	93.25	92.65	
	§Sulphate of ammonia, 20 % (Brussels) . . . . .	84.00	82.50	82.50	82.50	74.00	74.00	79.10	79.10	
B II	Maize, Plate (Antwerp) . . . . .	55.00	53.70	53.95	62.40	55.80	44.90	55.55	47.85	
	Linseed cake (Brussels) . . . . .	88.00	87.50	81.75	89.15	92.50	86.00	89.05	84.25	
	Coconut cake (Brussels) . . . . .	95.00	95.50	95.00	94.00	76.15	80.65	85.35	74.80	
	Groundnut cake (Brussels) . . . . .	92.50	90.00	90.00	93.00	78.00	79.65	84.40	77.60	
	Palm kernel cake (Brussels) . . . . .	n. q.	n. q.	n. q.	n q	83.00	78.00	* 82.80	75.80	
DENMARK (Prices in Danish crowns per quintal)										
A I	Wheat (Copenhagen) . . . . .	* 13.00	12.94	11.45	11.03	13.08	* 13.70	11.65	11.96	
	Barley (Copenhagen) . . . . .	* 12.10	12.28	11.90	12.55	14.32	* 12.22	13.48	12.13	
	Oats (Copenhagen) . . . . .	* 11.90	12.88	13.13	13.16	13.68	12.08	13.31	12.12	
A II	†Pigs, live weight . . . . .	153.00	162.40	174.00	166.67	162.93	134.20	161.30	141.00	
	†Butter (Copenhagen) . . . . .	225.00	187.00	169.50	157.97	165.37	178.48	179.65	161.05	
	†Eggs . . . . .	123.60	117.50	78.80	67.47	102.33	96.17	104.90	101.05	

\* Indicates that the product, during part of the period under review, was not quoted — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal. — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*

1) Each quarter a list is published for several countries containing prices of plant (A I) and animal (A II) products sold by the farmer as well as of fertilizers (B I) and of concentrated feeding stuffs for livestock (B II) bought by the farmer. In cases where the market is not indicated, the price is the average one for the country. — 2) July to June — 3) See note (3) on pp. 832/3. — 4) See note (4) on p. 833 — 5) Prices per unit of fertilizer material in 100 kg — 6) Early potatoes. — 7) Price per 100 kg. of potash manure salt 40 %, free at buyer's station. — 8) Delivery price.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		Sept.	August	July	April-	July-	July-	1934-35	1933-34
		1935	1935	1935	June 1935	Sept. 1934	Sept. 1933		

## DENMARK (continued)

B I	Superphosphate 18 % . . . . .	5.85	6.09	6.45	6.45	6.12	6.13	6.28	6.28
	Potash salts 40 % . . . . .	12.95	12.29	12.05	12.05	11.93	13.21	11.85	13.67
	Sulphate of ammonia . . . . .	14.95	15.36	16.20	16.20	15.40	14.59	15.47	15.29
	Nitrate of lime . . . . .	14.90	15.31	16.15	16.15	15.30	14.41	15.58	15.13
B II	Rye, imported (Jutland) . . . . .	11.91	11.25	9.26	9.84	12.67	9.62	11.25	10.50
	Maize, Plate (Jutland) . . . . .	12.45	11.93	9.60	10.95	13.03	10.37	11.95	11.72
	Wheat bran, Danish (Copenhagen) . . . . .	11.02	10.80	10.24	10.07	10.76	9.81	10.80	10.03
	Cottonseed cake (Copenhagen) . . . . .	13.90	13.45	12.96	13.12	13.73	13.66	14.19	13.07
	Sunflower-seed cake (Copenhagen) . . . . .	13.82	13.45	12.82	12.74	13.61	13.93	14.13	12.55
	Groundnut cake (Copenhagen) . . . . .	14.90	14.17	13.78	13.70	14.03	14.39	14.35	13.63
	Crushed soya extraction residue (Copenhagen) . . . . .	13.72	13.02	12.62	13.09	13.83	13.92	13.71	12.97

## FRANCE (Prices in francs per quintal)

A I	†Wheat (Paris) 1) . . . . .	85.00	71.60	73.25	79.65	118.50	117.05	96.50	124.00
	Rye (Paris) . . . . .	58.00	58.00	50.00	60.35	64.00	71.00	61.35	72.25
	Barley, malting (Paris) . . . . .	58.00	58.00	50.00	61.35	67.35	79.35	65.65	79.25
	†Oats (Paris) . . . . .	48.95	40.80	37.84	46.00	56.20	55.15	49.80	48.55
	§Wine, red, 10° (Montpellier) (hectol.) . . . . .					96.35	80.20	n.	100.00
A II	†Beef, dead weight (2nd quality) (Paris) . . . . .	503.00	473.00	514.00	500.00	534.00	537.00	488.00	531.00
	†Mutton, dead weight (Paris)(2nd quality) . . . . .	1,019.00	984.00	964.00	993.00	1,069.00	1,009.00	1,032.00	1,099.00
	†Pigs, live weight (Paris) . . . . .	406.00	392.00	366.00	343.00	418.00	615.00	370.00	502.00
B I	§Basic slag, 18 % (Thionville) . . . . .	18.55	20.70	20.70	20.70	22.50	22.50	21.65	22.50
	§Superphosphate 14 % (North and East) . . . . .	25.00	26.75	26.75	26.75	26.75	27.25	26.75	27.25
	§Sylvinit, minimum 12 % 2) . . . . .	14.70	14.70	15.00	15.00	15.00	14.40	15.00	16.30
	Nitrate of soda (Dunkirk) . . . . .	73.50	n. c.	n. c.	83.85	80.00	86.15	82.70	87.75
	Sulphate of ammonia 20.4 % . . . . .	78.00	85.00	83.75	86.00	85.00	87.40	85.65	89.80
B II	Linseed cake (North) . . . . .	58.00	53.00	54.00	55.75	72.40	63.40	67.05	65.25
	Coconut cake (Marseilles) 5) . . . . .	60.00	57.00	57.50	55.15	61.35	60.00	58.75	60.00
	Groundnut cake (Marseilles) . . . . .	51.00	50.00	49.00	43.00	52.50	55.00	49.15	53.35

## GREAT BRITAIN (Prices in shillings and pence: "A" per cwt: "B" per long ton).

A I	Wheat . . . . .	4/9	4/10	5/6 1/4	5/3	5/2	5/8 1/4	5/0 1/4	4/11
	Barley, feeding . . . . .	10/1 1/4	7/10 1/4	6/7	7/1	9/2 1/4	8/11 1/4	8/3 1/4	8/9 1/4
	Oats . . . . .	6/1 1/4	6/5	7/7 1/4	7/2 1/4	6/5 1/4	5/6 1/4	6/9 1/4	5/9 1/4
	†Potatoes (London) . . . . .	6/1 1/4	7/5	7/-	6/1 1/4	6/8	4/8 1/4	5/8 1/4	4/8 1/4
A II	†Beef, dead weight (London) . . . . .	62/6	64/1	68/7	63/6	69/1	64/2	64/5	64/6
	†Mutton, dead weight (London) . . . . .	82/2	81/8	86/4	97/-	96/11	77/4	95/4	86/4
	†Pork, dead weight (London) . . . . .	78/10	70/-	67/2	76/7	78/5	73/4	82/6	83/3
	Butter (London) . . . . .	132/2	121/4	113/10	108/6	110/1	135/10	110/8	123/1
	†Cheese, Cheddar (London) . . . . .	63/10	59/7	n. c.	86/-	74/8	68/7	83/-	82/3
	Eggs, fresh (London) (per 100) . . . . .	15/6	14/7	12/-	9/3 1/4	13/2	13/9 1/4	12/9 1/4	12/9
B I	§Basic slag 14 % (London) . . . . .	43/-	43/-	43/-	43/-	43/-	43/-	43/-	43/-
	Superphosphate, 16 % (London) . . . . .	56/-	56/-	56/-	56/-	56/-	56/-	56/-	56/-
	Kainite 14 % (London) . . . . .	55/-	55/-	54/-	54/-	56/-	64/8	54/6	61/2
	§Nitrate of soda, 15 1/2 % (London) . . . . .	152/-	152/-	152/-	152/-	154/-	159/-	152/6	156/4
	§Sulphate of ammonia 20.6 % (London) . . . . .	136/-	134/-	145/-	145/-	138/4	135/-	141/4	140/3
B II	Bran, British (London) . . . . .	112/7	98/6	99/2	103/6	116/7	98/-	117/-	102/10
	Bran, middlings, imported (London) . . . . .	108/9	103/6	106/7	102/11	118/1	92/6	115/1	94/1
	Linseed cake, English (London) . . . . .	162/-	162/-	162/-	165/3	199/1	177/-	182/1	183/2
	Cottonseed cake (London) . . . . .	93/2	92/-	92/-	92/-	97/7	102/7	96/1	92/-
	Palm kernel cake (Liverpool) . . . . .	117/-	121/-	125/-	125/-	121/10	118/7	124/5	117/5

\*, †, §: See notes on page 837.

1) See note (6) on page 832. — 2) From August 1933, rich sylvinit, 18 %. — 3) From January 1935, prices in Coudekerque.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		Sept.	August	July	April-June	July-Sept.	July-Sept.	1934-35	1933-34
		1935	1935	1935	1935	1934	1933		

## ITALY (Prices in lire per quintal)

A I	Wheat, soft (Milan)	109.00	103.40	92.10	110.45	83.65	83.85	94.95	84.15
	Wheat, hard (Palermo)	135.00	130.00	123.00	124.00	99.65	106.00	110.15	104.90
	Oats (Milan)	98.75	88.35	67.50	n. 67.50	54.30	49.45	59.90	50.70
	Maize (Milan)	80.25	81.50	78.25	75.10	58.15	48.85	61.55	50.80
	Rice, Maratelli (Milan)	138.00	131.10	128.60	132.10	126.70	147.25	128.00	144.10
	Hemp, fibre		360.00	356.00	358.00	249.00	264.00	283.75	273.00
	Olive oil "Soprafino locale" (Bari)	555.00	545.00	553.00	556.00	538.00	395.00	539.00	440.00
	Wine, ordinary, 11° (Bari) (hectol.)	65.00	75.00	75.00	66.65	53.00	64.00	63.00	60.00
A II	Oxen live weight (Milan)	254.00	262.00	248.00	251.65	249.00	227.00	252.00	229.50
	Lamb, dead weight (Rome)	718.75	760.00	n. q.	616.00	775.00	785.00	601.00	615.00
	Pigs, live weight (Milan)	445.00	450.00	352.00	353.65	372.00	413.00	355.00	395.00
	Cheese (Parmigiano-Reggiano) (Milan)	687.50	672.00	630.00	623.65	677.00	988.00	629.50	857.00
	Eggs, fresh (Milan) (per 100)	41.40	36.75	35.60	29.40	33.10	37.15	36.45	40.00
	Wool, Italian (Rome)	1,481.00	1,337.00	1,300.00	1,143.00	729.00	690.00	933.00	727.00
B I	Superphosphate of lime, 14-16 % (Milan)	19.55	20.35	19.30	18.95	20.45	21.35	19.80	21.10
	Chloride of potash (Milan)	42.50	42.50	43.25	43.50	63.00	70.30	53.55	66.60
	Nitrate of lime, 15-16 % (Milan)	74.55	79.50	78.50	78.15	71.65	77.75	74.25	78.45
	Sulphate of ammonia, 20-21 % (Milan)	71.35	78.50	77.35	77.00	72.75	77.50	74.25	77.40
	Cyanamide of calcium, 15-16 % (Milan)	52.40	57.00	57.00	57.00	55.15	58.80	55.80	58.70
	Copper sulphate (Genoa)	129.60	106.20	100.50	100.85	86.50	112.10	89.25	96.85
B II	Wheat bran (Genoa)	62.75	62.60	53.50	48.15	46.70	27.45	44.95	34.10
	Rice bran (Milan)	69.60	62.50	55.00	50.55	38.45	19.60	43.45	27.25
	Linseed cake (Milan)	81.00	70.90	61.75	61.00	52.80	39.70	59.25	46.20
	Groundnut cake (Milan)	68.00	58.70	49.25	44.85	33.25	37.35	39.40	33.35
	Rapeseed cake (Milan)	39.75	36.70	36.50	39.25	28.10	21.50	35.55	24.75

## NETHERLANDS (Prices in florins per quintal)

A I	Wheat (Groningen)	10.00	12.65	12.50	12.20	12.03	11.50	11.82	12.13
	Rye (Groningen)	6.63	6.37	7.20	7.27	7.67	3.49	7.37	6.36
	Barley (Groningen)	4.58	4.01	4.75	5.11	5.23	4.55	5.32	4.33
	Oats (Groningen)	5.80	5.22	6.11	6.43	6.10	4.13	6.17	4.99
	Peas (Rotterdam)	9.30	9.50	n. q.	9.47	8.97	9.85	9.36	8.50
	Flax, fibre (Rotterdam)	54.00	54.50	56.00	59.33	43.17	48.33	52.87	48.92
	Potatoes (Amsterdam)					6.07	4.30		5.30
A II	Beef, dead weight (Rotterdam)	49.50	48.50	49.50	52.33	60.00	56.17	55.92	57.71
	Pigs, live weight (Rotterdam)	44.50	39.50	35.50	35.17	30.67	35.17	33.37	35.92
	Butter for export (Leeuwarden)	58.00	46.25	43.00	37.04	41.83	60.67	44.00	53.15
	Butter for home consumption (Zutphen) 1)	n. q.	n. q.	146.00	148.54	144.75	163.00	148.12	154.17
	Cheese, Edam 40 % (Alkmaar)	45.00	33.00	28.00	26.27	33.60	40.06	35.84	42.40
	Cheese, Gouda 45 % (Gouda)	48.50	40.00	34.00	30.20	44.16	50.34	39.34	48.64
	Eggs (Roermond) (per 100)	3.31	3.27	2.52	2.36	3.65	3.32	3.44	4.00
B I	Basic slag 2)	0.089	0.087	0.087	0.090	0.110	0.126	0.102	0.120
	Superphosphate, 17 %	1.75	1.77	1.77	1.64	1.75	1.92	1.68	1.91
	Kainite 2)	0.089	0.076	0.068	0.068	0.068	0.140	0.068	0.090
	Nitrate of soda 15 1/2 to 16 %	5.70	5.62	6.25	6.59	6.01	6.21	6.24	6.07
	Sulphate of ammonia, 20 1/2 %	4.80	4.72	5.25	5.11	4.74	4.70	4.90	4.72
B II	Maize (Rotterdam)	4.81	4.26	4.24	4.59	5.36	3.71	5.03	4.53
	Linseed cake, Dutch	5.56	4.95	4.92	5.19	6.91	6.17	6.20	6.35
	Coconut cake, Dutch	5.58	5.20	5.29	5.69	6.05	5.57	6.01	5.27
	Groundnut cake, Dutch	5.45	4.76	4.67	4.78	6.02	5.27	5.51	5.17

## POLAND (Prices in zlotys per quintal)

A I	Wheat (Warsaw)	18.52	15.45	16.38	17.38	20.04	27.31	18.63	22.09
	Rye (Warsaw)	12.87	10.77	12.12	13.91	16.22	17.04	14.99	14.95
	Barley (Warsaw)	15.81	n. q.	15.25	17.36	20.40	15.75	19.87	15.55
	Oats (Warsaw)	15.08	14.75	15.88	15.89	15.75	15.58	15.31	13.69
A II	Oxen live weight (Warsaw)	66.00	65.00	62.00	58.33	65.63	62.62	60.06	67.30
	Pigs, live weight (Warsaw)	105.00	103.00	81.00	60.33	78.75	109.70	66.92	98.65
	Butter (Warsaw)	311.00	297.00	253.00	257.67	234.00	302.00	260.00	311.00
	Eggs (Warsaw) (per 100)	6.73	6.42	6.25	5.24	5.79	7.12	6.88	7.99

\* , †, §: see notes on page 837.

1) Before January 1933, quotations in Maastricht (page 425 of the *Crop Report* of June 1933). — 2) Prices per unit of fertilizer material in 100 kg. — 3) Price in June: 359.00. — 4) Controlled average

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		Sept.	August	July	April-	July-	July-	1934-35	1933-34
		1935	1935	1935	June 1935	June 1934	Sept. 1933		

**POLAND (continued)**

B I	Superphosphate 1) . . . . .	0.61	0.61	0.60	0.60	0.60	0.62	0.60	0.62
	Potash salts, 25 % 2) . . . . .	9.03	9.03	8.83	8.95	8.44	10.92	8.60	11.06
	Sulphate of ammonia 3) . . . . .	20.70	20.70	20.70	20.70	20.70	25.00	20.70	23.95
B II	Wheat bran (Warsaw) . . . . .	9.37	8.80	9.69	11.20	11.60	11.25	11.03	10.67
	Rye bran (Warsaw) . . . . .	8.25	7.45	8.87	10.05	10.44	9.09	9.72	9.05
	Linseed cake (Warsaw) . . . . .	16.75	16.45	17.45	18.00	19.13	17.70	17.69	17.90
	Rapeseed cake (Warsaw) . . . . .	12.75	11.55	12.45	12.35	14.36	13.81	13.20	13.67

**SWEDEN (Prices in Swedish crowns per quintal)**

A I	Wheat (Stockholm) . . . . .	15.40	15.00	19.00	17.99	17.08	16.49	17.02	16.94
	Rye (Stockholm) . . . . .	14.35	13.85	17.00	16.66	16.06	15.24	15.96	15.55
	Barley (Stockholm) . . . . .	n. q.	n. q.	n. q.	n. q.	12.70	11.08	12.89	11.64
	Oats (Stockholm) . . . . .	n. q.	11.25	11.34	11.66	11.97	10.39	11.75	11.10
A II	Oxen, live weight (Göteborg) . . . . .	...	57.00	56.00	51.00	45.45	33.40	48.00	37.10
	Pigs, live weight (Göteborg) . . . . .	...	82.00	82.00	78.35	56.37	55.25	65.50	49.37
	Butter (Malmö) . . . . .	216.00	215.00	218.00	230.00	230.00	223.33	230.00	228.35
	Eggs (Stockholm) . . . . .	128.00	126.00	97.20	73.07	93.87	86.50	106.20	90.47
B I	Superphosphate, 20 % . . . . .	7.45	7.80	7.80	7.80	7.80	7.80	7.80	7.51
	Potash salts, 20 % . . . . .	7.30	6.05	6.05	6.05	6.05	8.25	6.05	7.32
	Nitrate of soda . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	18.95	n. q.	18.15
	Calcium cyanamide . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	16.50	n. q.	16.50
B II	Maize, Plate . . . . .	15.35	15.22	15.19	15.69	14.47	9.09	15.23	10.00
	Wheat bran . . . . .	12.60	12.33	12.37	12.70	12.28	9.33	12.50	10.35
	Groundnut cake . . . . .	18.15	17.40	17.17	17.04	15.65	14.92	16.46	14.80
	Cottonseed cake . . . . .	16.65	15.85	15.50	15.33	13.85	13.01	14.67	12.70
	Stoy meal . . . . .	17.25	16.68	16.65	16.68	15.39	14.56	15.91	14.08

**CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)**

A I	Wheat (Prague) 4) . . . . .	163.00	162.00	190.00	180.20	168.10	149.00	173.10	146.30
	Rye (Prague) 4) . . . . .	126.00	125.00	147.00	138.50	128.50	81.30	132.60	98.20
	Malting Barley (Prague) 4) . . . . .	126.50	125.00	143.50	135.50	126.50	88.90	131.35	90.85
	Oats (Prague) 4) . . . . .	112.50	112.00	131.00	122.80	118.70	74.50	119.10	77.40
	Edible potatoes . . . . .	62.50	75.00	135.00	44.50	72.85	27.50	44.55	35.35
	Hops . . . . .	3,315.00	4,415.00	3,335.00	4,085.00	3,775.00	4,585.00	4,095.00	3,774.00
A II	Beef, dead weight . . . . .	875.00	850.00	800.00	792.00	725.00	750.00	744.00	744.00
	Veal, dead weight . . . . .	775.00	800.00	775.00	833.00	550.00	675.00	663.00	644.00
	Pork, dead weight . . . . .	1,105.00	1,075.00	937.00	926.00	825.00	946.00	813.00	782.00
	Butter . . . . .	1,825.00	1,725.00	1,775.00	1,850.00	1,825.00	1,800.00	1,790.00	1,785.00
	Fresh eggs (per 100) . . . . .	54.15	51.65	46.65	41.25	43.35	49.25	51.35	54.15
B I	Basic slag, 15 % . . . . .	...	...	34.85	34.85	34.85	34.85	34.70	34.80
	Superphosphate, 16 to 18 % . . . . .	...	...	48.50	48.50	48.50	49.80	48.50	48.95
	Kainite, 14 % . . . . .	...	...	19.10	19.15	18.05	20.45	18.10	19.25
	Nitrate of soda . . . . .	...	...	...	130.00	125.00	n. q.	129.15	125.00
	Sulphate of ammonia, 20 1/2 % . . . . .	...	...	123.40	123.40	121.75	123.95	122.00	122.70
B II	Maize, imported . . . . .	108.00	108.00	106.00	107.85	89.25	67.25	102.70	68.10
	Wheat bran (Prague) 5) . . . . .	105.00	105.00	87.00	92.80	97.85	61.35	95.75	69.80
	Rye bran (Prague) 5) . . . . .	103.00	103.00	85.00	90.80	96.50	61.35	93.95	69.20
	Crushed soya (Prague) 5) 6) . . . . .	142.00	142.00	145.00	144.65	106.00	99.15	132.20	94.40
	Rapeseed cake (Prague) 5) 7) . . . . .	117.50	117.50	120.50	120.15	92.35	87.80	109.30	84.25
	Linseed cake (Prague) 5) 8) . . . . .	139.50	139.50	142.50	142.15	114.00	93.15	133.25	92.00
	Groundnut cake (Prague) 5) 9) . . . . .	150.00	150.00	153.00	152.65	102.35	98.15	133.80	89.85

1) Prices per unit of fertilizer material in 100 kg.. — 2) New series from July 1934 onwards, Potash salts 20 %. — 3) New series from July 1934 onwards. — 4) Until the end of July 1934, average wholesale market prices; subsequently, producers prices. — 5) Until the end of July 1934, average wholesale market prices; Aug.-Nov., manufacturers, selling prices; subsequently, wholesalers' selling prices. — 6) From Aug. 1934, soyabean cake, delivery at Lovosice. — 7) From July 1934, delivery at Lovosice. — 8) From Dec. 1932: delivery at Lovosice. — 9) From Nov. 1932, delivery at Strekov.

## AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL <sup>1)</sup>

DESCRIPTION	Sept	Aug	July	June	May	April	Sept.	Sept	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Wheat</b>										
Budapest: Tisza . . . . .	9.34	9.13	8.98	9.72	9.24	9.31	10.26	5.49	8.24	7.76
Winnipeg: No 1 Manitoba . . . . .	10.15	9.52	9.14	9.19	9.71	9.96	9.41	8.30	8.52	8.34
Chicago: No 2 Hard Winter . . . . .	13.13	11.58	10.61	10.62	11.51	12.10	12.46	11.13	11.10	11.10
Buenos-Aires: Barletta 2) . . . . .	8.74	7.41	6.86	6.95	7.31	7.45	7.44	7.90	6.59	7.57
Berlin: Home grown . . . . .	24.25	24.59	25.62	25.69	25.88	25.73	24.21	22.01	23.65	23.09
Hamburg (c. i. f.):										
No 2 Manitoba . . . . .	12.22	11.40	10.58	10.66	11.51	11.70	11.15	9.97	10.22	10.47
Barusso . . . . .	9.90	8.61	7.86	8.09	8.42	8.56	8.67	8.89	7.51	8.83
Antwerp:										
Manitoba No 1 (Atlantic) . . . . .	11.64	11.13	10.36	10.70	11.55	11.53	11.32	10.87	10.18	10.55
Barusso . . . . .	9.57	8.83	7.75	8.00	8.32	8.65	8.20	8.83	7.41	8.75
Paris: Home grown . . . . .	17.25	14.53	14.87	16.34	16.48	15.68	22.53	24.36	24.71	22.41
Liverpool and London (c. i. f.):										
German (on sample) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	6.96	* 6.27	* 6.98
French (par échantillon) . . . . .	n. q.	6.67	6.55	7.35	6.92	6.91	7.64	n. q.	* 7.03	n. q.
Hungarian (on sample) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 7.42	* 6.26	* 7.15
No 1 Manitoba (Pacific) . . . . .	11.82	10.78	10.08	10.38	11.10	11.43	11.21	9.99	10.27	10.34
No 3 Manitoba (Pacific) . . . . .	10.93	9.82	9.15	9.43	10.23	10.54	10.47	9.35	9.42	9.75
Rosafe . . . . .	10.10	8.79	7.77	8.14	8.17	8.28	8.29	8.00	7.27	8.33
Australian . . . . .	10.41	9.32	8.90	9.47	9.47	9.66	9.97	9.23	8.74	9.60
Milan: Home grown, soft . . . . .	27.38	25.97	23.14	28.04	28.74	27.59	22.52	22.55	22.87	24.85
Genoa (c. i. f.):										
No 2 Manitoba . . . . .	n. q.	n. q.	n. q.	10.48	11.32	n. q.	10.79	9.99	* 9.65	* 10.60
No 2 Canadian Durum . . . . .	n. q.	n. q.	n. q.	11.09	12.65	13.43	12.88	9.75	* 11.07	* 10.87
<b>Rye</b>										
Berlin: Home grown . . . . .	19.67	19.34	20.69	20.75	20.90	20.76	19.27	17.69	19.32	18.54
Hamburg: Plate . . . . .	6.07	5.40	5.44	5.94	6.30	6.64	8.64	6.61	6.54	6.86
Warsaw: Home grown . . . . .	7.48	6.26	7.04	7.66	8.47	8.13	10.02	8.25	8.68	10.09
Minneapolis: No 2 . . . . .	5.72	5.50	5.10	6.68	6.76	7.54	10.17	9.66	8.49	8.66
<b>Barley</b>										
Braila: Average quality . . . . .	4.26	6.45	5.67	6.51	6.45	7.41	8.65	4.03	* 6.80	* 4.59
Prague: Maling, average quality . . . . .	16.19	16.00	n. q.	17.34	17.34	17.34	16.13	13.69	14.48	* 12.86
Winnipeg: No 4 Western . . . . .	4.70	4.23	4.36	5.09	5.51	5.86	7.99	5.27	6.42	5.59
Minneapolis: No 2 Feeding . . . . .	5.72	5.42	5.61	6.07	7.50	9.47	11.24	7.93	8.30	6.72
Berlin: Home grown toddler . . . . .	20.04	19.71	20.14	20.62	20.78	20.63	19.14	18.86	19.41	19.96
Antwerp: Danubian . . . . .	7.49	7.41	7.56	8.15	7.86	7.84	10.66	6.10	8.70	7.17
Liverpool and London (c. i. f.):										
No 3 Canadian Western . . . . .	7.06	6.62	6.79	7.39	8.09	8.70	10.46	* 7.79	8.79	8.18
Plate . . . . .	6.61	5.94	5.85	6.74	6.85	7.02	9.21	6.78	7.30	6.97
Persian . . . . .	6.41	5.81	5.61	6.53	6.75	6.76	9.46	n. q.	7.33	* 7.25
<b>Oats</b>										
Winnipeg: No 2 White . . . . .	7.18	7.19	8.57	8.00	8.08	8.42	9.16	7.36	7.81	7.13
Chicago: No 2 White . . . . .	6.97	6.84	7.68	8.68	9.49	11.01	12.06	8.78	9.65	8.04
Buenos-Aires: Current quality 2) . . . . .	7.25	5.87	5.27	5.38	5.57	5.54	5.79	5.04	4.53	5.14
Berlin: Home grown . . . . .	19.55	20.82	20.81	20.87	21.03	20.88	19.39	16.82	19.96	16.40
Paris: Home grown . . . . .	9.94	8.28	7.68	9.22	9.85	8.99	12.03	10.42	10.05	12.50
London and Liverpool (c. i. f.): Plate . . . . .	8.56	7.22	6.74	6.82	6.99	6.83	7.17	6.52	5.84	6.87

<sup>1)</sup> As gold franc, the Swiss franc, which still represents the franc of the former Latin Monetary Union, has been adopted. In cases where the difference between the rates of exchange of the national currency considered, and the parity with the Swiss franc, did not, during a given month, reach 2 ½ %, the monthly average has been reduced on the basis of parity. In contrary cases the average rate of exchange for the month has been utilized. Finally, when considerable fluctuations in the exchanges, in the course of a particular month, render it necessary, each weekly quotation has first been reduced to gold francs, and the average of these reductions is used in the calculations. — <sup>2)</sup> The price in gold-francs are based on the fixed rates of the exchange of the Argentinian peso.

DESCRIPTION	Sept.	August	July	June	May	April	Sept.	Sept.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Maize.</b>										
Braila: Danubian . . . . .	4.03	8.87	7.38	7.41	6.79	6.66	7.59	5.30	• 6.73	• 5.18
Chicago: No 3 Yellow . . . . .	10.07	9.90	10.11	10.17	10.63	10.88	9.53	6.44	7.91	6.29
Buenos-Aires: Yellow Plate 1) . . . . .	4.58	4.46	4.44	4.54	4.60	4.80	7.01	5.00	5.86	5.24
Liverpool and London (c. i. f.):										
Yellow Plate . . . . .	5.55	5.19	5.23	5.64	5.69	5.87	7.84	5.85	• 6.88	• 6.58
No 2 White African . . . . .	5.72	5.57	5.80	6.18	6.31	6.25	8.48	n. q.	• 7.90	• 7.15
Milan: Home grown . . . . .	20.16	20.47	19.66	20.73	18.80	17.80	12.29	13.27	14.50	13.35
<b>Rice.</b>										
Milan: Originario . . . . .	33 25	32.43	31.36	32.20	30.80	30.44	27.04	25.53	27.22	26.00
Rangoon: No 2 Burma . . . . .	8.83	8.34	8.87	8.91	8.60	8.48	8.21	6.55	6.91	7.37
Saigon: No 1 Round white . . . . .	8.93	8.40	8.93	8.87	9.28	9.05	8.12	8.16	6.59	8.28
London (c. i. f.):										
No 2 Burma . . . . .	12.06	11.13	11.62	11.84	12.12	11.39	11.94	10.17	10.17	11.08
No 1 Saigon . . . . .	11.75	10.85	11.37	11.28	11.96	11.54	11.29	11.40	9.58	11.50
Tokyo: Chumai . . . . .	19.84	19.13	18.70	18.21	18.28	18.09	18.21	13.81	16.87	15.80
<b>Cotton.</b>										
New Orleans: Middling . . . . .	72.52	76.33	81 93	80.85	83.29	81.01	86.84	71.28	83.52	75.50
Bombay (terminal market): M. g. Broach,										
f. g. . . . .	64.52	72.73	75 14	73.45	78.96	73.94	69.59	68.75	69.02	69.93
Alexandria: Sakellariadis, f. g. f. . . . .	98.09	99.05	100 42	99.60	101.38	100.21	101.12	94.48	108.44	104.70
Liverpool:										
Middling american . . . . .	87.72	89 80	96 35	94.82	96.07	90.76	98.11	82 00	95.28	87.50
M. g. Broach, f. g. . . . .	72.40	74.63	82.56	79.64	81.59	78.53	73.23	66.62	71.87	n. 73.74
Sakellariadis, f. g. f. . . . .	115.42	112.22	111 80	112.22	116 26	114.83	117 01	109 78	123.01	118.95
<b>Beef.</b>										
Berlin: Home grown (live weight) . . . .	103.93	102.76	101 73	101.02	101.27	101.54	87.44	77.06	83 54	78.55
Paris: Home grown (dead weight) . . . .	102.11	96.02	104.34	104.34	100.89	99.47	111 85	111.65	104.22	112.78
London: Home grown (dead weight) . . . .	93.23	95.59	102.31	97.46	94.85	90.74	102.37	97.09	101 57	111.23
<b>Mutton.</b>										
Paris: Home grown (dead weight) . . . .	206.86	199.75	195.69	197.92	197.11	209.70	217.01	201.98	225.99	218.93
London: Home grown (dead weight) . . . .	122.57	121.82	128.79	128.54	146.31	157.29	138 97	119.49	142.03	142.13
<b>Pork.</b>										
Denmark: Home grown (live weight) . . .	103.55	110.25	117.59	117.43	114.28	105.52	117.18	103.38	107.97	93.20
Rotterdam: Home grown (live weight) . .	92.69	82.28	73.95	68.74	72.90	78.11	62.49	81.24	68.74	71.07
Berlin: Home grown (live weight) . . . .	127.44	126.66	122.42	113 37	112.47	113.35	122.76	114.36	107.88	98.52
Paris: Home grown (live weight) . . . .	82.42	79.58	74.30	70.03	69.22	69.63	88.91	123.02	85.77	131.04
London: Home grown (dead weight) . . . .	117.60	104.42	100.19	107.90	112.25	120.95	128.55	136.29	129.54	131.79

1) The prices in gold-francs are based on the fixed rates of exchange of the Argentinian peso.

DESCRIPTION	Sept.	August	July	June	May	April	Sept	Sept	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Butter</b>										
Copenhagen: Danish . . . . .	152.28	126.95	114.55	111.02	100.35	107.53	121.57	146.33	111.34	131.90
Leeuwarden: Dutch . . . . .	120.81	96.34	89.57	83.84	71.59	76.03	89.57	135.39	92.48	125.37
Hamburg: Schleswig-Holstein . . . . .	321.68	320.35	320.21	321.10	323.47	323.15	323.57	316.33	314.83	277.77
London:										
Danish . . . . .	188.33	164.21	152.53	150.42	138.61	144.16	158.20	187.24	150.88	174.82
Argentine . . . . .	n. q.	n. q.	n. q.	n. q.	107.90	108.06	n. q.	n. q.	* 106.12	131.63
Australian, salted . . . . .	163.84	139.72	130.15	126.17	115.11	107.69	105.84	164.03	107.41	134.63
New Zealand, salted . . . . .	164.46	141.22	134.25	129.53	117.72	113.46	107.58	163.23	111.11	136.44
<b>Cheese</b>										
Milan: Parmigiano-Reggiano . . . . .	172.70	168.81	158.26	158.02	159.31	159.08	144.87	236.14	190.75	264.15
Alkmaar: Edam 40 x . . . . .	93.73	68.74	58.32	55.20	53.74	55.20	85.40	85.82	87.40	93.34
Kempen: Emmenthal variety . . . . .	190.54	189.74	189.66	190.19	188.48	186.43	175.37	175.37	174.39	178.52
London:										
English Cheddar . . . . .	95.22	88.88	n. q.	128.29	128.29	126.72	122.09	121.62	* 127.81	145.90
Canadian . . . . .	82.17	94.85	94.10	93.98	92.74	90.01	75.69	87.02	82.69	101.00
New Zealand . . . . .	81.67	71.85	66.26	66.13	64.89	65.82	71.22	84.02	71.08	78.93
<b>Eggs (per 100)</b>										
Denmark: Danish (per quintal) . . . . .	83.65	79.77	53.25	51.29	43.28	41.68	85.10	90.27	71.69	81.30
Roermond: Dutch for export . . . . .	6.89	6.82	5.26	5.04	4.87	4.81	8.35	8.12	8.21	7.69
Warsaw: Polish, average quality . . . . .	3.90	3.74	3.63	3.27	2.80	2.99	3.58	4.44	4.30	4.98
Berlin: German, big, special quality . . . . .	14.23	14.17	12.56	11.11	11.20	11.19	12.50	13.10	12.67	12.83
London:										
Danish . . . . .	8.13	8.17	6.66	6.24	5.66	5.70	7.91	8.64	8.08	9.10
Dutch . . . . .	8.97	8.84	6.89	6.47	6.00	5.73	8.33	9.77	8.67	* 10.06

## EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1)

NATIONAL CURRENCIES	Exchange rates					Percentage bonus (+) or loss (-)				
	18 Oct. 1935	11 Oct. 1935	4 Oct. 1935	27 Sept. 1935	20 Sept. 1935	18 Oct. 1935	11 Oct. 1935	4 Oct. 1935	27 Sept. 1935	20 Sept. 1935
Germany: free reichsmark. . . . .	123.475	123.500	123.500	123.800	124.000	0.0	0.0	0.0	+ 0.3	+ 0.4
Argentina: paper peso †) 2). . . . .	100.833	100.367	100.367	100.933	101.000	- 54.2	- 54.4	- 54.4	- 54.1	- 54.1
Belgium: belga. . . . .	51.700	51.750	51.900	52.000	52.000	- 0.4	- 0.3	- 0.0	+ 0.2	+ 0.2
Canada: dollar . . . . .	3.030	3.020	3.022	3.040	3.055	- 41.5	- 41.7	- 41.7	- 41.3	- 41.1
Denmark: crown . . . . .	67.500	67.225	67.200	67.525	67.600	- 51.4	- 51.6	- 51.6	- 51.4	- 51.3
Spain: peseta . . . . .	41.950	41.950	41.925	42.000	42.050	- 58.1	- 58.1	- 58.1	- 58.0	- 58.0
Egypt: pound 3). . . . .	15.125	15.055	15.055	15.140	15.150	- 40.0	- 40.3	- 40.3	- 40.0	- 39.9
United Kingdom: pound sterling . . . . .	3.072	3.070	3.074	3.079	3.080	+ 0.4	+ 0.3	+ 0.4	+ 0.6	+ 0.6
United States: dollar . . . . .	20.250	20.240	20.232	20.297	20.285	- 0.3	- 0.3	- 0.4	- 0.0	- 0.1
France: franc . . . . .	57.125	58.500	59.125	59.500	59.000	37.0	35.5	34.8	34.4	34.9
Indo-China: piaster 4). . . . .	114.194	113.665	113.665	114.307	114.382	39.6	39.9	39.9	39.6	39.5
Hungary: pengő 5). . . . .	25.050	24.950	24.900	25.100	25.100	- 8.2	- 8.5	- 8.7	- 8.0	- 8.0
India: rupee †). . . . .	88.607	88.197	88.385	88.884	88.943	65.7	65.9	65.8	65.6	65.6
Italy: lira . . . . .	208.050	208.000	207.450	208.050	208.450	- 0.1	- 0.2	- 0.4	+ 0.1	+ 0.1
Japan: yen †). . . . .	57.800	57.750	57.900	57.950	57.950	- 0.6	- 0.7	- 0.4	- 0.3	- 0.3
Netherlands: florin . . . . .	1.675	1.725	1.725	1.725	1.700	- 46.0	- 44.4	- 44.4	- 44.4	- 45.2
Poland: zloty . . . . .	77.900	77.625	77.600	78.025	78.200	- 43.9	- 44.1	- 44.1	- 43.8	- 43.7
Rumania: leu . . . . .	12.715	12.725	12.715	12.725	12.725	- 0.6	- 0.6	- 0.6	- 0.6	- 0.6
Sweden: crown . . . . .										
Czechoslovakia: crown . . . . .										

1) The exchange rate represents the value of 100 units of the national currency (for the dollar and the pound sterling 1 unit) expressed in Swiss francs, as far as possible on the Zurich Exchange. With regard to the currencies marked thus †) a conversion has been made; the original exchange rates on London being converted into Swiss francs by means of the rate of the £ in Zurich. — 2) Fixed exchange rates. — 3) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 4) As the relation between the Indo-Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given. — 5) Bank notes.

## VARIATIONS IN THE INDEX-NUMBERS OF PRICES

On the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

*Percentage variations in the index-numbers for September 1935.*

COUNTRIES	Comparison with August 1935		Comparison with September 1934	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany . . . . .	— 0.6	— 0.1	+ 3.9	+ 1.9
England and Wales . . . . .	+ 6.7	+ 1.2	+ 2.4	+ 3.6
Argentina . . . . .	+ 7.7	—	— 0.6	—
Canada . . . . .	+ 4.7	+ 1.0	+ 5.5	+ 0.4
United States: Bur. of Agric. Economics . . . . .	+ 0.9	—	+ 3.9	—
United States: Bur. of Labor . . . . .	0.2	+ 0.2	+ 8.3	+ 4.0
Finland . . . . .	0.0	+ 1.1	+ 4.1	+ 1.1
Hungary . . . . .	+ 3.8	+ 3.4	+ 15.5	+ 10.8
Italy . . . . .	—	+ 2.5	—	+ 22.5
New Zealand . . . . .	+ 3.0	—	+ 2.6	—
Netherlands . . . . .	+ 4.1	+ 2.6	— 7.3	— 2.7
Poland . . . . .	+ 2.7	+ 1.1	— 0.5	— 1.5
Yugoslavia:				
plant products . . . . .	+ 15.5	+ 4.6	+ 27.6	+ 7.3
livestock products . . . . .	+ 0.9	—	— 1.8	—

*Quarterly general index-numbers of prices of agricultural products.*

(Base: first quarter of 1929 = 100).

COUNTRIES	1933		1934				1935		
	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Germany . . . . .	66.2	70.1	69.0	69.0	74.4	75.5	75.0	75.7	77.9
England and Wales . . . . .	72.4	75.5	80.8	80.6	84.0	83.8	84.5	83.3	85.4
Argentina . . . . .	57.9	55.5	64.7	63.6	72.5	69.0	66.5	66.1	69.0
Canada . . . . .	58.9	54.3	58.2	58.8	62.7	62.9	73.8	74.2	64.5
United States: Bur. of Agr. Economics . . . . .	55.3	53.9	55.7	57.1	63.7	69.4	74.4	73.8	71.9
United States: Bur. of Labor . . . . .	54.9	52.7	56.9	57.3	63.2	67.0	73.8	75.2	74.1
Finland . . . . .	69.8	68.5	68.2	67.3	67.8	70.4	70.4	69.8	72.0
Hungary . . . . .	40.7	40.0	42.9	49.4	51.1	52.9	55.3	56.1	59.6
Italy . . . . .	49.4	51.4	52.2	53.5	55.6	57.9	58.8	63.0	67.8
New Zealand 1). . . . .	92.2	101.8	110.6	105.8	108.6	99.9	105.9	102.3	108.4
Netherlands . . . . .	55.4	58.6	58.9	61.1	58.2	55.0	52.8	53.6	55.7
Poland 2) . . . . .	59.5	53.8	52.1	50.9	51.0	48.8	45.9	45.1	46.1
Yugoslavia: { plant products . . . . .	38.1	38.3	39.7	42.5	43.5	43.1	45.3	44.2	50.4
livestock products . . . . .	52.3	53.9	53.1	51.9	49.4	53.0	53.4	53.4	50.6

1) Base: first quarter of 1931 = 100. — 2) First month of each quarter compared with January 1929. — 3) July and August only.



# **INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER <sup>1)</sup>**

Description	Sept.	August	July	June	May	April	Sept.	Sept.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Germany</b>										
(Statistisches Reichsamt)										
1913 = 100.										
Foodstuffs of plant origin . . . . .	110.7	114.5	116.2	115.0	114.5	114.1	112.9	97.5	108.7	98.7
Livestock . . . . .	90.4	88.6	85.9	83.2	80.6	79.2	76.9	69.8	70.9	64.3
Livestock products . . . . .	110.0	109.6	105.5	103.4	103.3	103.1	106.0	105.7	105.0	97.5
Feeding stuffs . . . . .	103.4	103.7	103.8	104.6	104.6	104.8	105.8	86.3	102.0	86.4
Total agricultural products . . . . .	103.7	104.3	103.1	101.5	100.6	100.0	99.8	89.9	95.9	86.8
Fertilizers <sup>2)</sup> . . . . .	66.7	65.9	64.9	65.7	65.7	68.2	68.4	70.8	68.7	70.2
Agricultural dead stock . . . . .	111.1	111.1	111.1	111.1	111.1	111.0	111.3	112.1	111.1	111.6
Finished manufactures ("Konsumgüter")	123.8	124.1	123.9	123.8	123.9	124.1	118.4	113.2	117.3	111.7
Wholesale products in general . . . . .	102.3	102.4	101.8	101.2	100.8	100.8	100.4	94.9	98.4	93.3
<b>England and Wales</b>										
(Ministry of Agriculture and Fisheries)										
Average for corresponding months										
of 1911-13 = 100										
Agricultural products <sup>3)</sup> . . . . .	128	120	120	117	117	126	125	111	119	111
Feeding stuffs . . . . .	81	80	83	86	88	90	102	80	91	85
Fertilizers . . . . .	88	88	89	89	89	88	89	88	90	90
Wholesale products in general <sup>4)</sup> . . . . .	100.1	98.9	99.2	98.5	100.2	98.9	96.6	94.9	96.3	93.7
<b>Argentina</b>										
(Banco de la Nación Argentina)										
1926 = 100.										
Cereals and linseed . . . . .	70.7	64.3	62.5	63.5	64.8	66.7	78.7	55.3	68.1	54.4
Meat . . . . .	91.5	88.6	84.7	80.0	77.8	77.9	80.0	70.4	78.5	65.9
Hides and skins . . . . .	80.0	76.3	75.2	77.3	80.7	77.8	65.3	66.5	71.6	63.9
Wool . . . . .	79.9	78.7	75.4	69.2	70.0	65.4	80.5	58.4	84.3	54.6
Dairy products . . . . .	120.2	104.6	100.5	82.6	75.8	75.0	68.1	61.1	62.3	57.4
Forest products . . . . .	91.5	91.8	91.8	90.4	92.8	92.8	71.6	70.5	73.1	72.5
Total agricultural products . . . . .	76.5	71.0	68.8	68.3	69.2	69.7	77.0	58.5	70.5	56.9
<b>Canada</b>										
(Internal Trade Branch										
of the Dominion Bureau of Statistics)										
1926 = 100										
Field products (grain, etc.) . . . . .	58.3	55.5	55.7	55.1	58.0	59.8	59.0	49.5	53.8	45.7
Livestock and livestock products . . . . .	75.5	72.4	71.1	72.0	74.4	72.9	65.0	63.2	67.7	59.6
Total Canadian farm products . . . . .	64.7	61.8	61.5	61.4	64.1	64.7	61.2	54.6	59.0	51.0
Fertilizers . . . . .	75.8	75.8	75.8	75.8	75.8	75.8	75.8	75.8	75.9	73.8
Consumers' goods (other than foodstuffs, beverages and tobacco) . . . . .	75.0	75.4	75.3	75.7	75.6	75.7	77.6	77.3	77.0	76.0
Wholesale products in general . . . . .	72.3	71.6	71.5	71.5	72.3	72.5	71.9	68.9	71.6	67.2

<sup>1)</sup> For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696).  
<sup>2)</sup> Revised series from October 1934. Oct. 68.0, Nov. 66.9, Dec. 66.2, Jan. 1935 67.8; Feb. 68.2, March 68.2 — <sup>3)</sup> Revised index-numbers due to the Wheat Act payments and, from 1 September 1934, the Cattle Emergency Act payments. — <sup>4)</sup> Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	Sept	August	July	June	May	April	Sept	Sept	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>United States</b>										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100.										
Cereals . . . . .	97	96	96	102	112	115	112	78	93	62
Cotton and cottonseed . . . . .	90	97	102	103	105	103	110	69	99	64
Fruits . . . . .	82	87	98	100	98	105	93	78	100	74
Truck crops (market garden crops) . . . . .	101	92	93	96	127	156	133	147	102	105
Meat animals . . . . .	131	129	116	119	118	117	82	62	68	60
Dairy products . . . . .	102	98	97	99	107	117	99	89	96	82
Poultry and eggs . . . . .	126	111	107	108	110	105	104	78	89	75
Miscellaneous . . . . .	96	102	85	86	89	92	129	102	108	83
Total agricultural products . . . . .	107	106	102	104	108	111	103	80	90	70
Commodities purchased 1) . . . . .	125	126	126	127	127	127	126	116	122	109
Agricultural wages 1) . . . . .	102	—	99	—	—	94	2) 90	2) 78	88	80
<b>United States</b>										
(Bureau of Labor)										
1926 = 100.										
Cereals . . . . .	83.5	79.3	78.3	76.9	83.2	87.9	88.1	63.9	74.5	53.1
Livestock and poultry . . . . .	92.0	91.6	82.8	84.8	87.6	85.9	64.1	46.7	51.5	43.4
Other farm products . . . . .	70.4	71.4	72.9	74.3	75.0	74.5	74.4	61.2	70.5	55.8
Total agricultural products . . . . .	79.5	79.3	77.1	78.3	80.6	80.4	73.4	57.0	65.3	51.4
Agricultural implements . . . . .	93.7	93.6	93.6	93.6	93.6	93.6	92.0	83.2	89.6	83.5
Fertilizer materials . . . . .	67.2	66.8	65.7	65.7	65.9	66.0	66.4	66.6	67.1	65.9
Mixed fertilizers . . . . .	67.8	68.1	68.6	74.5	73.1	72.9	73.0	67.8	72.5	64.5
Cattle feed . . . . .	67.9	71.3	78.6	92.2	107.0	104.9	100.7	64.2	89.4	57.9
Non-agricultural commodities . . . . .	80.8	80.6	79.8	80.0	80.0	79.9	78.4	73.7	76.9	69.0
Wholesale products in general . . . . .	80.7	80.5	79.4	78.9	80.2	80.1	77.6	70.8	74.9	65.9
<b>Finland</b>										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals . . . . .	77	78	79	79	79	79	86	83	82	88
Potatoes . . . . .	65	83	89	88	84	81	51	46	49	77
Fodder . . . . .	59	55	68	67	66	63	61	75	72	72
Meat . . . . .	77	81	79	72	71	76	74	64	71	64
Dairy products . . . . .	85	84	82	77	75	79	76	84	75	75
Total agricultural products . . . . .	77	77	78	75	74	75	74	74	73	74
Wholesale products in general . . . . .	91	90	90	90	90	90	90	90	90	89
<b>Hungary</b>										
(Central Bureau Statistics)										
1913 = 100										
Agricultural and livestock products . . . . .	82	79	79	75	77	74	71	53	—	—
Wholesale products in general . . . . .	92	89	90	87	86	86	83	70	—	—
<b>Italy</b>										
(Consiglio Provinciale dell'Economia										
Corporativa di Milano)										
1913 = 100.										
National agricultural products . . . . .	...	379.6	357.4	359.6	335.1	331.7	308.8	274.7	297.9	280.7
Wholesale products in general . . . . .	337.4	329.2	319.1	314.5	304.4	298.7	275.5	280.7	275.8	283.4
<b>New Zealand</b>										
(Census and Statistics Office)										
Average 1909-13 = 100.										
Dairy products . . . . .	97.6	90.8	88.7	79.5	80.2	77.6	84.0	89.7	77.5	84.0
Meat . . . . .	151.0	148.0	151.5	150.2	152.8	162.1	153.4	115.7	152.2	120.7
Wool . . . . .	80.4	85.1	84.4	84.8	77.5	78.3	104.1	73.8	110.0	69.8
Other pastoral products . . . . .	107.9	100.7	100.7	98.5	84.5	86.8	80.4	90.9	80.2	74.5
All pastoral and dairy products . . . . .	108.7	105.3	105.2	100.6	99.1	100.7	106.2	91.9	104.5	88.4
Field products . . . . .	125.4	126.3	124.5	124.7	124.8	129.3	123.1	118.2	120.6	115.8
Total agricultural products . . . . .	109.2	106.6	105.8	101.3	99.9	101.6	106.4	92.7	104.7	89.2

DESCRIPTION	Sept. 1935	August 1935	July 1935	June 1935	May 1935	April 1935	Sept 1934	Sept. 1933	Year	
									1934-35 2)	1933-34 2)
<b>Norway</b>										
(Kegl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals . . . . .	142	143	148	145	143	144	141	120	126	112
Potatoes. . . . .	132	168	240	257	175	147	97	97	132	103
Pork. . . . .	113	107	93	94	90	93	86	87	83	81
Other meat. . . . .	148	161	150	138	142	140	149	105	137	110
Eggs. . . . .	103	99	79	75	67	79	101	99	92	85
Dairy products. . . . .	140	139	139	138	137	135	132	130	132	126
Concentrated feeding stuffs . . . . .	126	125	126	111	113	117	112	95	109	96
Malze. . . . .	116	114	115	95	99	101	111	83	101	83
Fertilizers. . . . .	83	83	78	78	78	78	80	83	81	87
<b>Netherlands</b>										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products. . . . .	51	52	53	58	56	54	68	64	58	59
Livestock products. . . . .	50	48	48	48	47	49	50	52	49	53
Total agricultural products . . . . .	51	49	49	50	50	50	55	55	51	55
Agricultural wages . . . . .	69	69	69	69	69	71	71	74	71	74
Wholesale products in general 1)	50.7	49.4	50.1	50.7	50.7	51.4	52.1	50.7	52.8	50.1
<b>Poland</b>										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products . . . . .	32.5	29.6	33.1	37.2	38.9	34.0	37.2	34.9	35.6	41.1
Meat animals . . . . .	42.4	45.3	37.5	32.4	30.9	31.0	35.1	45.7	36.7	42.5
Dairy products and eggs . . . . .	44.0	40.2	38.8	37.5	36.3	39.3	36.5	49.2	41.2	46.7
Products directly sold by farmers . . . . .	37.9	36.7	35.6	35.6	35.8	34.0	36.4	41.1	37.0	42.6
Flour and groats. . . . .	35.8	34.7	33.8	36.0	38.2	38.4	41.1	40.9	38.8	47.8
Meat and lard fat . . . . .	50.2	47.3	43.1	37.1	36.0	33.8	44.4	52.3	43.5	49.8
Sugar, alcohol, beer . . . . .	79.4	79.3	79.3	79.3	79.2	79.3	85.5	90.3	88.6	90.3
Products of agricultural industries . . . . .	55.1	53.7	51.9	50.6	50.8	50.2	56.8	61.0	56.7	62.4
Total agricultural products. . . . .	46.4	45.1	43.7	43.0	43.2	42.0	46.5	50.9	46.8	52.4
Commodities purchased. . . . .	66.8	66.5	66.5	66.8	66.9	67.0	69.0	72.2	70.6	72.9
Wholesale products in general. . . . .	54.2	53.6	52.9	52.6	52.7	52.2	55.0	58.1	55.8	59.1
<b>Yugoslavia</b>										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products. . . . .	78.1	67.6	60.3	60.1	61.2	58.9	61.2	48.0	57.4	57.2
Livestock products. . . . .	53.6	53.1	55.6	58.5	56.5	56.3	54.6	58.2	55.4	57.1
Industrial products . . . . .	67.3	66.4	65.7	65.7	66.4	65.3	65.6	67.6	67.4	70.8
Wholesale products in general. . . . .	67.8	64.8	63.3	63.9	64.0	62.9	63.2	60.7	63.2	64.4

1) Calculated by the the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100 — 2) Agricultural year: Norway, 1st April-31 March; Netherlands, 1st July-30 June. — 3) Calendar year.

# RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium (2)	Canada (3)	Denmark	Sweden	Egypt	Spain	Switzerland	United States (4)	France Indo-China (5)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czechoslovakia (6)
Germany . . . . .	Reichsmark	1.000	0.561	11.898	0.238	0.889	4.819	1.235	0.403	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	9.648		
Argentina . . . . .	Paper peso	1.782	1.000	21.203	0.424	1.584	8.586	2.200	0.718	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	17.191		
Belgium . . . . .	Franc (2)	0.084	0.047	1.000	0.020	0.075	0.040	0.104	0.034	0.511	0.082	0.114	0.055	0.380	0.040	0.050	0.178	3.347	0.811		
Canada . . . . .	Dollar (3)	4.198	2.356	49.948	1.000	3.731	20.230	5.183	1.693	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	40.501		
Denmark/Sweden . . . . .	Crown	1.125	0.631	13.385	0.268	1.000	5.422	1.389	0.454	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	10.854		
Egypt . . . . .	Piastre	0.207	0.116	2.469	0.049	0.184	1.000	0.256	0.083	1.262	0.203	0.283	0.135	0.939	0.099	0.123	0.441	8.264	2.002		
Spain/Switzerland . . . . .	Peseta/Fr.	0.810	0.455	9.638	0.193	0.720	3.903	1.000	0.327	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	7.815		
United States . . . . .	Dollar (4)	2.479	1.391	29.500	0.591	2.204	11.948	3.061	1.000	15.074	2.427	3.377	1.618	11.221	1.185	1.469	5.265	98.737	23.920		
France/Indo-China (5) . . . . .	Franc	0.164	0.092	1.957	0.039	0.146	0.793	0.203	0.066	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.589		
Great Britain . . . . .	Shilling	1.021	0.573	12.154	0.243	0.908	4.923	1.261	0.411	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	9.856		
Hungary . . . . .	Pengó	0.734	0.412	8.736	0.175	0.653	3.580	0.905	0.296	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	7.084		
India . . . . .	Ruppee	1.532	0.860	18.231	0.365	1.362	7.384	1.892	0.618	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	14.783		
Italy . . . . .	Lira	0.221	0.124	2.629	0.053	0.196	1.065	0.273	0.090	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	2.131		
Japan . . . . .	Yen	2.092	1.174	24.897	0.498	1.860	10.084	2.583	0.843	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	20.189		
Netherlands . . . . .	Florin	1.687	0.947	20.077	0.402	1.450	8.132	2.083	0.681	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	16.280		
Poland . . . . .	Zloty	0.471	0.264	5.603	0.112	0.419	2.269	0.581	0.190	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	4.543		
Romania . . . . .	Leu	0.025	0.014	0.299	0.006	0.022	0.121	0.031	0.010	0.153	0.025	0.034	0.016	0.114	0.012	0.015	0.053	1.000	0.242		
Czechoslovakia . . . . .	Crown (6)	0.103	0.058	1.233	0.025	0.092	0.499	0.128	0.042	0.630	0.102	0.141	0.067	0.469	0.049	0.062	0.220	4.127	1.000		

(1) Each quotation shows the par-value of the monies named in the column headed "Unit of currency," calculated in terms of the currency of the Countries printed in the heading. — (2) From 31 March 1935 the franc represents only 72 % of its previous gold value. — (3) Till 31 January 1934, also parity of the United States. — (4) New parity as from 31 January 1934. — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only 1/4 of its previous gold value.

# MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

*The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.*

## WORLD WHEAT PRODUCTION

A few European countries – Estonia, Hungary, Luxemburg, Romania and Czechoslovakia – have revised their preliminary crop estimates causing a slight increase of 2 million bushels in the total of the European wheat crop. Last month this total was 1,540 million bushels and now becomes 1,542 million bushels. The increase is due chiefly to Czechoslovakia and it therefore affects the total of the importing group, the figure for the exporting group remaining unchanged. It is to be noted also that Spain has issued a revised figure for its 1934 crop which is increased from 174 to 187 million bushels. As a result of these new estimates, the total European crop is 8 million bushels smaller than that of last year while the figure given last month was the same as that of 1934.

Canada reduced its September estimate by 16.6 million bushels as a result of the damage suffered by the late crops at the time of ripening. The November estimate for Canada generally, with rare exceptions, is lower than that of September but it is always smaller than the final estimate of the crop. The difference in recent years, however, has been slight, as the following table shows:

### *Estimates of the Canadian Wheat Crop.*

(millions of bushels)

Years	September estimate	November estimate	Final figure
1927 . . . . .	459	444	480
1928 . . . . .	552	501	507
1929 . . . . .	294	294	305
1930 . . . . .	385	390	421
1931 . . . . .	271	298	321
1932 . . . . .	197	131	143
1933 . . . . .	283	272	282
1934 . . . . .	277	275	282
1935 . . . . .	291	274	...

The estimates for the other continents remain practically unchanged, the revisions being negligible.

So far as the southern hemisphere is concerned, the latest information received from Argentina indicates that the crops are still backward for the time of year and their condition seems mediocre. The Government has not yet issued the first forecast of the crop. The crops in Australia, according to information recently received by the Institute, made good progress and the crop is plentiful except in Western Australia where it is smaller. The Government has not revised the first estimate of production issued last month.\*) In the Union of South Africa the crop is expected to be plentiful and in excess of the internal requirements of the country.

It appears from the revisions made by the various governments that the total world wheat production will be about 15 million bushels smaller than the total calculated last month, the small increase recorded for Europe being insufficient to offset the decrease which has occurred in North America.

### World Wheat Production (1).

(million bushels).

YEARS	Europe 2)			North America	South America	Asia 2)	Africa	Oceania	Total 2)	U S S R
	Importing countries	Exporting countries	Total							
1923-27 Average . .	920	323	1,243	1,210	275	402	108	143	3,381	694
1928 . . . . .	976	433	1,409	1,492	399	342	116	168	3,926	807
1929 . . . . .	1,073	378	1,451	1,139	221	384	136	134	3,465	694
1930 . . . . .	917	445	1,362	1,323	273	456	115	221	3,748	989
1931 . . . . .	973	462	1,435	1,271	264	407	131	197	3,705	753
1932 . . . . .	1,213	279	1,492	1,197	286	393	140	225	3,733	742
1933 . . . . .	1,291	455	1,746	822	345	421	122	184	3,640	3) 1,018
1934 . . . . .	1,214	336	1,550	790	288	431	151	140	3,350	3) 1,117
Forecast 1935 . . . . .	1,167	375	1,542	883	225	445	130	140	3,365	...

1) Not including China, Iran, Turkey and Iraq — 2) Not including U S S R — 3) Probably over-estimated

The changes which have occurred in the total of the crops of the various continents being slight, the essential characteristics of the world crop in 1935 and the probable commercial movements, remain as outlined in the *Crop Report* of last month.

Net world wheat export figures for August and September only are at present available. These were 40 million bushels in August and 50 million bushels in September compared respectively with 49 and 44 million bushels in 1934. This total of 90 million bushels for the first two months of the year 1935-36 agrees at present with our forecast of 540 million bushels as the import requirements for the whole year, this total giving an average of 45 million bushels per month.

\*) A telegram received from Australia when the *Crop Report* was in the press indicates that the estimate of the wheat crop has been increased from 135 million bushels to 140 million bushels (81 to 84 million cents).

Winter sowings were made in good conditions in most European countries and germination was satisfactory on the whole. Some delay is notified in some areas, especially in south-eastern and south-western parts of Europe which were affected by the drought and in the north where there was too much rain. Estimates of the areas cultivated are not yet available but the general impression is that the area sown to wheat will not differ greatly from that of last year.

The areas sown up to the end of October to all winter crops in the U. S. S. R., consisting chiefly of wheat and rye, indicate that the Plan will be carried out in full. Weather was generally favourable for sowings.

In North America there was drought in the autumn in several important producing areas but rain fell between the middle of October and the middle of November bringing an appreciable improvement in all parts. An increase in the area sown to winter wheat is expected but the extent of the expansion cannot yet be gauged.

In North Africa, the rains in October allowed sowings to be made in good conditions while the work is proceeding satisfactory also in India.

G. C.

## CEREALS

*Germany:* Heavy rains were experienced in nearly all parts of the country during October, causing some delay in field work. The weather, however, was fairly favourable for sowing and for the growth of catch crops. The crop condition of winter cereals was considered to be about the same as it was at this time last year. The figures for 1 November, compared with those of 1 November 1934 and expressed in the system of the country, were as follows: winter wheat, 2.5 (2.5); winter rye, 2.6 (2.4); winter barley, 2.4 (2.4); winter spelt, 2.5 (2.3).

*Austria:* The fine weather of the beginning of October was broken by rains, which were occasionally heavy, at the end of the first week of the month. Temperatures were exceptionally high in the middle of October. At the beginning of the third decade there was a drop in temperature followed by very heavy rains. There was snow in the Alpine valleys of the north. There were also slight frosts in a few places.

Sowing of winter cereals was finished in the greater part of the country in the middle of October. Germination was generally satisfactory. The rains of the end of October improved the condition of the sowings a great deal.

Crop condition of winter cereals on 1 November was as follows: winter wheat, 2.2 (against 2.1 on 1 November 1934); winter rye 2.1 (2.0); winter barley 1.9 (2.0).

*Belgium:* October was characterised by alternating periods of rain and of fine weather, with some night frosts.

The sowing of winter cereals is nearly completed. The first sproutings are good and even.

*Bulgaria:* Notwithstanding the dry weather of October, the sowing of winter cereals continued throughout the month.

The seeding of wheat, rye and barley was finished at the beginning of November.

*Estonia:* As a result of the frequent rains of October, harvesting, threshing and bringing in of the cereal crops were considerably impeded. The wet weather partly spoiled the crop which was still in the stook.

Owing to the soaked condition of the soil, sowings were made later than usual.

*Irish Free State:* The weather during October was unfavourable, and, except, for an occasional fine day, was wet, stormy and cold with overcast skies.

The work of reaping had been completed while that of threshing was impeded by the weather conditions but with no serious results.

Preparatory work and autumn sowings were carried out in unsatisfactory conditions.

*Finland:* There was excessive rainfall during October.

*France:* The second half of October was generally favourable for sowing and the germination of the seedings. Temperatures fell towards the end of the month. The beginning of November was wet. Rain slowed down work in some districts, particularly in the west, Vendée, Poitou, the lower Loire and in the east, in Jura and the Alpine areas. Conditions continued to be very satisfactory in other parts and the slight rainfall encouraged sprouting. Sowings were nearly finished in most areas, apart from the root growing districts, and were effected in very good conditions. Sprouting was even and very satisfactory. The seedings were good in appearance at the middle of November. At the latter period, however, the flooding of the Rhône and its tributaries caused very grave damage in the riverine areas of Provence. These districts, however are of rather slight importance from the point of view of cereal production.

*Great Britain and Northern Ireland:* October was an unusually stormy month with frequent gales and heavy rain. Some sharp frosts occurred, but milder conditions prevailed towards the end of the month. Floods were experienced in some localities.

The wet weather hindered autumn cultivation, particularly in Scotland where the preparations for the sowings of wheat were very much in arrears, but the work is not unduly behindhand in the eastern half of England where the early harvest made it possible for ploughing operations to be commenced sooner than usual. In the western half of the country and on heavy land, however, the interference with autumn work was considerable and accordingly in these areas the sowing of wheat and other crops is not so far forward as usual. The lighter soils have worked well and the land appears to be clean. Where cereals have been sown, germination was good and some excellent seed beds have been obtained.

*Hungary:* During the three weeks between 26 October and 16 November weather was changeable with higher than average temperatures night frosts and frequent rains which, however, were not heavy on the whole.

The seedings which were put in the ground early germinated evenly and were growing well in the middle of November. The later sowings sprouted unevenly owing to the drought. The rains which fell at the end of the period under consideration effected a considerable improvement in the condition of the backward seedings.

*Italy:* Wet weather predominated during the first half of October and facilitated preparatory work in the fields for the sowing of cereals which, in some areas, was slightly late owing to the drought of the preceding month.



## Wheat.

COUNTRIES	†) AREA					†) PRODUCTION								
	1935 1935/36	1934 1934/35	Average	% 1935		1935 1935/36	1934 1934/35	Average	1935 1935/36	1934 1934/35	Average	% 1935		
			to 1933	1934 1934/35	Aver.			to 1933			1934 1934/35	to 1933	1934 1934/35	Aver.
			1929/30					1929/30				1929/30		
			to 1933/34					to 1933/34				to 1933/34		
1,000 acres					1,000 centals			1,000 bushels						
Germany . . . . .	5,199	5,431	5,015	95.7	103.7	103,022	99,926	96,910	171,700	166,539	161,514	103.1	106.3	
Austria . . . . .	609	568	524	107.2	116.4	9,354	7,985	7,366	15,590	13,308	12,277	117.1	127.0	
Belgium . . . . .	386	371	381	104.1	101.3	8,267	9,681	8,487	13,779	16,134	14,144	85.4	97.4	
Bulgaria . . . . .	2,729	3,114	2,988	87.6	91.3	28,755	23,757	30,951	47,925	39,594	51,584	121.0	92.9	
*Denmark . . . . .	311	280	255	111.0	122.2	...	7,708	6,550	...	12,847	10,916	...	...	
Spain . . . . .	11,063	11,388	11,084	97.1	99.8	92,367	112,103	90,939	153,942	186,834	151,562	82.4	101.6	
Estonia . . . . .	154	161	111	97.1	138.9	1,379	1,864	1,100	2,298	3,107	1,834	74.0	125.3	
*Irish Free State .	...	94	30	...	...	...	2,282	705	...	3,803	1,174	...	...	
Finland . . . . .	136	125	53	108.9	257.1	...	1,951	803	...	3,252	1,339	99.1	242.9	
France . . . . .	13,206	13,354	13,278	98.9	99.5	167,261	203,110	183,042	278,763	338,511	305,064	82.3	91.4	
Engl. and Wales . .	1,771	1,759	1,364	100.7	129.8	34,944	39,155	26,795	58,240	65,259	44,658	89.2	130.4	
Scotland . . . . .	101	98	57	103.5	177.1	2,434	2,486	1,416	4,056	4,144	2,359	97.9	171.9	
*Northern Ireland	9	9	4	104.5	220.1	...	218	92	...	363	153	...	...	
Greece . . . . .	2,020	1,957	1,479	103.2	136.6	18,519	15,407	9,339	30,864	25,679	15,565	120.2	196.3	
Hungary . . . . .	4,005	3,799	3,925	105.4	102.0	44,369	38,895	47,124	73,947	64,824	78,538	114.1	94.2	
Italy . . . . .	12,422	12,274	12,074	101.2	102.9	170,076	139,840	154,812	283,454	233,063	258,014	121.6	109.9	
Latvia . . . . .	347	351	221	98.9	99.6	4,144	4,831	2,616	6,906	8,051	4,361	85.8	158.4	
Lithuania . . . . .	521	514	500	101.4	104.2	5,756	6,285	5,318	9,593	10,475	8,863	91.6	108.2	
Luxemburg . . . . .	43	40	27	108.8	162.5	616	703	341	1,027	1,171	568	87.7	181.0	
Malta . . . . .	9	9	9	99.9	99.6	107	186	177	179	310	296	57.7	60.6	
Norway . . . . .	59	46	29	126.7	203.2	1,024	722	428	1,707	1,204	713	141.8	239.3	
Netherlands . . . .	377	366	216	102.9	174.2	9,553	10,825	5,573	15,921	18,042	9,287	88.2	171.4	
Poland . . . . .	4,342	4,315	4,108	100.6	105.7	44,062	45,865	43,292	73,435	76,440	72,151	96.1	101.8	
Portugal . . . . .	...	1,344	1,267	...	...	9,540	14,814	9,206	15,900	24,690	15,342	64.4	103.6	
Romania . . . . .	8,496	7,610	7,535	111.7	112.8	57,864	45,933	64,853	96,438	76,553	108,086	126.0	89.2	
Sweden . . . . .	673	718	690	93.8	97.6	13,911	17,026	13,227	23,185	28,376	22,045	81.7	105.2	
Switzerland 1) . .	211	211	180	100.0	117.3	4,562	4,007	3,380	7,604	6,677	5,633	113.9	135.0	
Czechoslovakia 2)	2,380	2,301	2,074	103.5	114.8	37,257	30,009	32,578	62,094	50,013	54,295	124.2	114.4	
Yugoslavia . . . .	5,313	5,002	5,141	106.2	103.3	43,861	40,998	50,898	73,100	68,328	84,828	107.0	86.2	
Total Europe . . .	§ 77,916	77,226	74,330	100.9	104.8	914,955	918,381	890,971	1,524,899	1,530,606	1,484,920	99.6	102.7	
*U. S. S. R. (w) (s)	31,836	26,660	24,987	119.4	127.4	...	670,428	503,890	...	1,117,358	839,800	...	...	
Canada . . . . .	24,119	23,985	25,936	100.6	93.0	164,383	165,509	212,576	273,971	275,849	354,294	99.3	77.3	
United States (w) (s)	31,389 4)	32,968 4)	37,780 4)	95.2	83.1	259,200	243,331	343,717	432,000	405,552	572,861	106.5	75.4	
Mexico . . . . .	20,837 4)	9,281 4)	19,841 4)	224.5	105.0	100,200	54,826	126,547	167,000	91,377	210,912	182.8	79.2	
Total North Amer.	77,544	67,458	84,815	115.0	91.4	529,950	470,236	690,134	883,250	783,728	1,150,224	112.7	76.8	
Chosen . . . . .	...	789	824	...	...	5,375	5,561	5,361	8,957	9,268	8,935	96.6	100.3	
India . . . . .	34,485	35,992	32,516	95.8	106.1	217,818	210,874	210,112	363,029	351,456	350,187	103.3	103.7	
Japan . . . . .	1,626	1,589	1,280	102.3	127.0	29,233	28,597	20,187	48,721	47,660	33,645	102.2	144.8	
Manchukuo . . . .	...	2,042	3,441	...	...	20,635	14,078	30,153	34,392	23,463	50,253	146.6	68.4	
*Syria and Leb. . .	1,288	1,175	1,170	109.7	110.1	...	8,724	8,851	...	14,540	14,751	...	...	
Turkey . . . . .	5,482	7,625	7,231	71.9	75.8	54,058	59,828	55,900	90,094	99,711	93,165	90.4	96.7	
Total Asia . . . .	44,424	48,037	45,292	92.5	98.1	327,119	318,938	321,713	545,193	531,558	536,185	102.6	101.7	
Algeria . . . . .	4,005	4,068	3,839	98.4	104.3	18,595	26,117	18,316	31,158	43,528	30,526	71.6	102.1	
*Cyrenaica . . . .	52	22	20	233.3	257.4	...	107	51	...	179	84	...	...	
Egypt . . . . .	1,463	1,442	1,595	101.5	91.8	25,933	22,366	26,831	43,221	37,276	44,718	115.9	96.7	
Eritrea . . . . .	11	15	14	75.0	78.9	66	77	32	110	129	54	85.7	203.8	
*Kenya . . . . .	45	44	48	104.3	94.4	...	360	313	...	601	522	...	...	
French Morocco . .	3,210	3,018	2,885	106.4	111.3	10,673	23,752	16,767	17,787	39,586	27,944	44.9	63.7	
Tripolitania . . . .	30	25	22	120.0	133.3	106	139	79	176	231	132	76.2	133.3	
Tunisia . . . . .	1,829	1,947	1,952	93.9	93.7	10,362	8,267	7,597	17,269	13,779	12,662	125.3	136.4	
Total North Africa	10,548	10,515	10,307	100.3	102.3	65,835	80,718	69,622	109,721	134,529	116,036	81.6	94.6	
*Argentina . . . .	14,085 s)	18,812 s)	19,701	74.9	71.5	...	144,403	136,990	...	240,667	228,312	...	...	
*Chile . . . . .	2,049	2,120	1,684	96.7	121.7	...	18,078	16,795	...	30,129	27,991	...	...	
*Uruguay . . . . .	1,227	1,099	1,054	111.7	116.4	...	6,769	6,224	...	11,281	10,373	...	...	
Un. of South Afr. .	...	1,423	1,375	...	...	10,722	9,206	6,702	17,870	15,343	11,170	116.5	160.0	
Australia . . . . .	11,970	12,567	15,710	95.2	76.2	81,000	80,093	110,683	135,000	133,489	184,471	101.1	73.2	
*New Zealand 6) .	246	231	274	106.7	89.6	...	3,560	4,979	...	5,933	8,298	...	...	
GRAND TOTALS . .	§ 223,825	217,226	231,829	103.0	96.5	1,929,581	1,877,572	2,089,825	3,215,933	3,129,253	3,483,006	102.8	92.3	

## Rye.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Average	% 1935		1935	1934	Average	1935	1934	Average	% 1935	
	—	—	1929	1935/36	1935/36	—	—	1929	—	—	1929	1934/1935	Aver.
	1935/36	1934/35	to 1933	1934/1935	Aver.	1935/36	1934/35	to 1933	1935/36	1934/35	to 1933	1934/1935	Aver.
	1,000 acres					1,000 centals			1,000 bushels				
Germany . . . .	11,198	11,097	11,257	100.9	99.5	166,522	167,720	174,628	297,362	299,501	311,837	99.3	95.4
Austria . . . .	930	949	940	98.0	99.0	12,952	12,666	12,425	23,128	22,617	22,187	102.3	104.2
Belgium . . . .	525	528	561	99.5	93.6	10,803	12,444	12,012	19,291	22,222	21,449	86.8	89.9
Bulgaria . . . .	433	494	570	87.7	75.9	4,350	3,605	5,524	7,767	6,438	9,865	120.6	78.7
*Denmark . . . .	391	377	346	103.7	112.9	...	6,048	5,317	...	10,801	9,495	...	...
Spain . . . .	1,401	1,426	1,512	98.3	92.7	10,705	12,078	12,565	19,116	21,567	22,438	88.6	85.2
Estonia . . . .	357	364	358	98.2	99.9	3,619	5,076	4,064	6,462	9,064	7,258	71.3	89.0
*Irish Free State . .	...	2	3	...	...	...	37	60	...	67	107	...	...
Finland . . . .	613	609	532	100.6	115.2	7,917	8,705	7,139	14,137	15,545	12,748	90.9	110.9
France . . . .	1,663	1,694	1,776	98.2	93.6	16,229	18,471	18,322	28,981	32,984	32,718	87.9	88.6
Greece . . . .	185	182	162	101.6	114.1	1,698	1,381	1,105	3,031	2,466	1,974	122.9	153.6
Hungary . . . .	1,548	1,586	1,590	97.6	97.4	14,912	13,653	16,739	26,629	24,381	29,891	109.2	89.1
Italy . . . .	272	278	297	97.8	91.6	3,509	3,140	3,652	6,267	5,607	6,522	111.8	96.1
Latvia . . . .	658	654	608	100.6	108.2	7,941	8,991	6,127	14,180	16,056	10,941	88.3	129.6
Lithuania . . . .	1,236	1,225	1,194	100.9	103.5	13,562	14,745	12,186	24,219	26,331	21,761	92.0	111.3
Luxemburg . . . .	19	19	19	98.1	99.5	256	307	258	456	548	461	83.3	99.1
Norway . . . .	15	15	17	105.9	90.7	258	221	272	460	395	486	116.6	94.7
Netherlands . . . .	502	463	445	108.5	112.8	8,188	11,081	8,604	14,621	19,788	15,365	73.9	95.2
Poland . . . .	14,302	13,934	14,276	102.6	100.2	140,697	142,506	144,863	251,246	254,476	258,684	98.7	97.1
*Portugal . . . .	...	348	401	...	...	...	2,751	2,573	...	4,913	4,595	...	...
Romania . . . .	960	912	913	105.4	105.2	7,126	4,653	8,241	12,724	8,308	14,717	53.2	86.5
Sweden . . . .	557	581	561	95.8	99.3	9,700	11,577	8,927	17,322	20,674	15,940	83.8	108.7
Switzerland . . . .	35	35	47	100.0	75.0	686	695	835	1,224	1,242	1,491	98.6	82.1
Czechoslovakia . . .	2,493	2,442	2,578	102.1	96.7	36,121	33,583	40,875	64,502	59,969	72,991	107.6	88.4
Yugoslavia . . . .	623	613	607	101.7	102.7	4,323	4,305	4,670	7,720	7,688	8,339	100.4	92.6
Total Europe . . .	40,525	40,100	40,820	101.1	99.3	482,074	491,603	504,033	860,845	877,867	900,063	98.1	95.6
*U. S. S. R. . . .	58,519	58,474	64,626	100.1	90.5	...	443,792	494,543	...	792,488	883,114	...	...
Canada . . . .	769	735	919	104.6	83.7	5,942	3,037	5,953	10,610	5,423	10,630	195.6	99.8
United States . . .	3,699	1,942	3,104	190.5	119.2	29,232	8,985	19,694	52,200	16,045	35,167	325.3	148.4
Total North Amer. .	4,468	2,677	4,023	166.9	111.1	35,174	12,022	25,647	62,810	21,468	45,797	292.6	137.1
Turkey . . . .	591	602	635	98.1	93.0	6,191	5,370	6,614	11,055	9,590	11,811	115.3	93.6
Algeria . . . .	3	3	4	82.0	76.2	14	25	23	25	45	41	55.0	60.7
*Argentina . . . .	1,606	2,134	1,477	75.3	108.8	...	8,841	4,270	...	15,787	7,624	...	...
GRAND TOTALS . .	45,587	43,382	45,482	105.1	100.2	523,453	509,020	536,317	934,735	908,970	957,712	102.8	97.6

## Barley.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935 — 1935/36	1934 — 1934/35	Average 1929 to 1933 — 1929/30 to 1933/34	% 1935 1935/36		1935 — 1935/36	1934 — 1934/35	Average 1929 to 1933 — 1929/30 to 1933/34	1935 — 1935/36	1934 — 1934/35	Average 1929 to 1933 — 1929/30 to 1933/34	% 1935 1935/36	
				1934 — 1934/1935	Aver. — 100							1934 — 1934/1935	Aver. — 100
1,000 acres					1,000 centals			1,000 bushels					
Germany . . . .	3,966	4,030	3,876	98.4	102.3	73,970	70,634	69,410	154,107	147,156	144,607	104.7	106.1
Austria . . . .	402	416	416	96.6	96.5	5,992	6,499	5,998	12,484	13,540	12,497	92.2	99.9
Belgium . . . .	99	93	83	107.3	119.9	2,425	2,325	1,919	5,052	4,843	3,998	104.3	126.4
Bulgaria . . . .	501	566	602	88.5	83.1	6,211	4,133	7,184	12,941	8,610	14,966	150.3	86.5
*Denmark . . . .	851	841	890	101.2	95.5	...	21,072	22,436	...	43,900	46,743	...	...
Spain . . . . .	4,536	4,752	4,629	95.5	98.0	43,712	62,145	50,358	91,068	129,471	104,914	70.3	86.8
Estonia . . . .	258	257	272	100.5	95.1	2,112	2,533	2,480	4,401	5,277	5,167	83.4	85.2
*Irish Free State . . . .	...	143	114	...	...	...	3,254	2,588	...	6,779	5,391	...	...
Finland . . . .	329	325	298	101.1	110.3	...	3,816	4,600	...	7,951	9,583	...	104.5
France . . . . .	1,795	1,810	1,834	99.2	97.9	23,658	22,797	24,221	49,288	47,496	50,461	103.8	97.7
Engl. and Wales . . . .	793	861	976	92.1	81.2	13,933	16,285	17,499	29,027	33,927	36,456	85.6	79.6
Scotland . . . .	77	96	85	80.0	90.9	1,472	2,016	1,761	3,067	4,200	3,668	73.0	83.6
*Northern Ireland . . . .	3	2	2	127.6	192.5	...	57	35	...	118	74	...	...
Greece . . . . .	544	526	508	103.3	107.1	5,049	4,316	3,759	10,518	8,992	7,831	117.0	134.3
Hungary . . . . .	1,181	1,181	1,167	100.1	101.3	12,680	11,992	14,640	26,418	24,983	30,501	105.7	86.6
Italy . . . . .	481	491	546	98.0	88.0	4,410	4,472	5,386	9,187	9,318	11,221	98.6	81.9
Latvia . . . . .	477	445	451	107.2	105.8	5,056	4,801	4,297	10,534	10,001	8,953	105.3	117.7
Lithuania . . . .	507	503	495	100.7	102.4	5,317	5,598	5,210	11,076	11,663	10,855	95.0	102.0
Luxembourg . . . .	6	6	10	99.4	66.1	86	89	129	179	185	268	96.7	66.9
Malta 8) . . . .	5	5	6	94.6	75.4	65	114	133	136	238	277	57.2	49.3
Norway . . . . .	153	147	137	104.3	112.1	2,818	2,547	2,274	5,870	5,307	4,738	110.6	123.9
Netherlands . . . .	98	80	64	123.1	154.1	2,555	2,182	1,643	5,323	4,546	3,422	117.1	155.6
Poland . . . . .	3,018	2,909	3,033	103.8	99.5	31,495	32,025	32,788	65,616	66,719	68,309	98.3	96.1
*Portugal . . . . .	...	124	183	...	...	...	972	949	...	2,024	1,977	...	...
Romania . . . . .	4,079	4,332	4,720	94.2	86.4	20,367	19,210	43,553	42,431	40,021	90,737	106.0	46.8
Sweden . . . . .	258	247	303	104.5	85.0	4,632	4,756	5,068	9,650	9,908	10,559	97.4	91.4
Switzerland . . . .	14	14	18	100.0	78.9	223	224	280	465	467	583	99.6	79.7
Czechoslovakia . . . .	1,594	1,632	1,735	97.7	91.9	23,400	22,804	28,849	48,752	47,510	60,104	102.6	81.1
Yugoslavia . . . .	1,044	1,042	1,056	100.1	98.8	8,279	9,038	9,095	17,248	18,829	18,948	91.6	91.0
Total Europe . . . .	26,215	26,766	27,320	97.9	95.9	307,733	318,135	341,587	632,789	662,790	711,651	95.5	88.9
Canada . . . . .	3,886	3,612	4,538	107.6	85.6	42,006	30,596	43,103	87,512	63,742	89,798	137.3	97.5
United States . . . .	3) 12,957 4)	7,095 4)	12,194	182.6	106.3	139,200	56,807	119,079	290,000	118,348	248,081	245.0	116.9
Total North Amer. . .	16,843	10,707	16,732	157.3	100.7	181,206	87,403	162,182	377,512	182,090	337,879	207.3	111.7
Chosen . . . . .	...	2,179	2,403	...	...	25,398	23,097	20,455	52,913	48,120	42,616	110.0	124.2
Japan . . . . .	1,919	1,860	2,088	103.2	91.9	37,732	34,324	36,771	78,610	71,509	76,607	109.9	102.6
*Syria and Leb. . . .	715	611	810	117.0	88.3	...	5,351	8,032	...	11,148	16,734	...	...
Turkey . . . . .	...	3,977	3,435	...	...	28,468	36,856	33,552	59,310	76,785	69,901	77.2	84.8
Total Asia . . . . .	5) 8,075	8,016	7,926	100.7	101.9	91,598	94,277	90,778	190,833	196,414	189,124	97.2	100.9
Algeria . . . . .	3,047	3,131	3,431	97.3	88.8	15,432	21,482	16,569	32,151	44,755	34,519	71.8	93.1
*Cyrenaica . . . . .	151	110	84	137.4	178.8	...	292	264	...	608	551	...	...
Egypt . . . . .	281	284	342	98.7	82.1	5,021	4,336	5,200	10,461	9,033	10,834	115.8	96.6
Eritrea . . . . .	62	47	53	132.6	115.7	276	251	280	574	524	583	109.6	98.4
French Morocco . . . .	3,988	3,844	3,344	103.8	119.3	12,782	33,516	23,174	26,631	69,826	48,279	38.1	55.2
Tripolitania . . . .	272	247	282	110.0	96.5	1,213	661	650	2,526	1,378	1,355	183.3	186.4
Tunisia . . . . .	1,532	1,186	1,221	129.2	125.4	8,819	3,307	4,630	18,372	6,890	9,645	266.7	190.5
Total Africa . . . .	9,182	8,739	8,673	105.1	105.9	43,543	63,553	50,503	90,715	132,406	105,215	68.5	86.2
*Argentina . . . . .	15) 1,927 5)	2,014 5)	1,530	95.7	126.0	...	19,533	11,116	...	40,695	23,159	...	...
*Chile . . . . .	163	147	163	110.7	99.9	...	1,826	2,461	...	3,803	5,127	...	...
*Uruguay . . . . .	32	23	12	136.9	263.0	...	125	80	...	260	166	...	...
*New Zealand 6) . . .	27	29	26	94.0	104.0	...	242	342	...	505	713	...	...
GRAND TOTALS . . .	5) 60,315	54,228	60,651	111.2	99.4	620,080	563,368	645,050	1,291,849	1,173,700	1,343,869	110.1	96.1

See notes on page 856

\*\* St. 11 Engl.

## Oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Average	%	1935	1935	1934	Average	1935	1934	Average	%	1935
	1935/36	1934/35	1929 to 1933	1934	1935/36	1935/36	1934/35	1929 to 1933	1935/36	1934/35	1929 to 1933	1934	1935
			1929/30 to 1933/34	1934/1935	Aver.			1929/30 to 1933/34			1929/30 to 1933/34	1934/1935	Aver.
	1,000 acres					1,000 centals			1,000 bushels				
				= 100	= 100							= 100	= 100
Germany . . . .	6,902	7,773	8,317	88.8	83.0	118,390	120,204	144,830	369,967	375,634	452,591	98.5	81.7
Austria . . . .	742	743	759	99.9	97.7	8,975	10,285	9,155	28,047	32,139	28,610	87.3	98.0
Belgium . . . .	710	726	720	97.8	98.7	14,771	17,781	15,853	46,159	55,566	49,539	83.1	93.2
Bulgaria . . . .	268	317	328	84.5	81.8	2,041	1,642	2,559	6,379	5,133	7,997	124.3	79.8
*Denmark . . . .	909	943	960	96.3	94.6	...	21,766	22,132	...	68,019	69,163	...	...
Spain . . . . .	1,619	1,932	1,917	83.8	84.5	11,904	16,578	15,083	37,200	51,807	47,133	71.8	78.9
Estonia . . . .	342	341	361	100.4	94.8	3,030	3,518	3,163	9,467	10,994	9,885	86.1	95.8
*Irish Free State .	...	583	640	...	...	...	12,564	13,860	...	39,262	43,312	...	...
Finland . . . .	1,171	1,173	1,106	99.9	105.9	14,140	17,115	13,720	44,189	53,485	42,875	82.6	103.1
France . . . . .	8,202	8,210	8,444	99.9	97.1	101,596	96,660	108,686	317,484	302,060	339,642	105.1	93.5
Engl. and Wales .	1,416	1,402	1,672	101.0	84.7	24,349	24,998	29,474	76,090	78,120	92,106	97.4	82.6
Scotland . . . .	826	816	862	101.2	95.9	13,800	14,448	15,519	43,124	45,150	48,496	95.5	88.9
*Northern Ireland .	273	280	296	97.5	92.1	...	6,143	6,011	...	19,198	18,783	...	...
Greece . . . . .	358	336	322	106.7	111.2	2,822	2,172	2,012	8,818	6,787	6,289	129.9	140.2
Hungary . . . .	553	552	619	100.1	89.3	4,893	5,718	6,787	15,291	17,869	21,210	85.6	72.1
Italy . . . . .	1,047	1,049	1,182	99.9	88.6	11,358	10,803	13,164	35,495	33,758	41,137	105.1	86.3
Latvia . . . . .	822	742	779	110.8	105.5	9,237	8,567	7,399	28,866	26,770	23,123	107.8	124.8
Lithuania . . . .	824	812	891	101.5	92.5	8,769	8,372	8,612	27,404	26,163	26,911	104.7	101.8
Luxembourg . . .	67	67	72	100.0	92.7	1,010	1,002	1,012	3,156	3,133	3,164	100.7	99.8
Norway . . . . .	215	226	238	95.3	90.4	3,824	3,887	3,904	11,949	12,146	12,201	98.4	97.9
Netherlands . . .	320	323	364	99.1	87.7	5,785	6,337	6,728	18,078	19,803	21,024	91.3	86.0
Poland . . . . .	5,525	5,412	5,424	100.7	101.9	56,553	56,234	55,927	176,727	175,730	174,770	100.6	101.1
*Portugal . . . .	...	402	431	...	...	...	2,461	1,898	...	7,691	5,932	...	...
Romania . . . .	1,970	2,044	2,369	96.4	83.2	13,089	12,418	20,438	40,904	38,806	63,867	105.4	64.0
Sweden . . . . .	1,657	1,628	1,618	101.8	102.5	26,676	27,147	25,007	83,362	84,835	78,146	98.3	106.7
Switzerland . . .	25	25	45	100.0	55.0	460	449	806	1,439	1,404	2,517	102.4	57.1
Czechoslovakia .	1,898	1,936	2,041	98.1	93.0	22,644	25,992	32,044	70,763	81,224	100,136	87.1	70.7
Yugoslavia . . .	919	916	928	100.3	99.0	6,126	7,351	6,794	19,144	22,972	21,231	83.3	90.2
<b>Total Europe . .</b>	<b>38,398</b>	<b>39,501</b>	<b>41,378</b>	<b>97.2</b>	<b>92.8</b>	<b>486,242</b>	<b>499,678</b>	<b>548,676</b>	<b>1,519,502</b>	<b>1,561,488</b>	<b>1,714,600</b>	<b>97.3</b>	<b>88.6</b>
Canada . . . . .	14,097	13,731	13,051	102.7	108.0	141,565	109,181	117,865	442,392	341,190	368,327	129.7	120.1
United States . .	3) 39,530	4) 30,172	4) 39,201	131.0	100.8	378,880	168,284	352,048	1,184,000	525,889	1,100,151	225.1	107.6
<b>Total North Amer.</b>	<b>53,627</b>	<b>43,903</b>	<b>52,252</b>	<b>122.1</b>	<b>102.6</b>	<b>520,445</b>	<b>277,465</b>	<b>469,913</b>	<b>1,626,392</b>	<b>867,079</b>	<b>1,468,478</b>	<b>187.6</b>	<b>110.8</b>
Byria and Lebanon	30	32	29	93.7	104.7	...	318	246	...	994	768	...	...
Turkey . . . . .	...	449	390	...	...	5,664	3,501	3,275	17,699	10,939	10,234	161.8	172.9
Algeria . . . . .	440	450	554	97.8	79.4	2,756	3,804	3,710	8,612	11,889	11,594	72.4	74.3
French Morocco .	72	66	83	109.2	86.6	439	606	677	1,371	1,894	2,115	72.4	64.8
Tunisia . . . . .	74	86	86	85.7	85.9	...	441	666	...	1,378	2,081	...	...
<b>Total Africa . .</b>	<b>512</b>	<b>516</b>	<b>637</b>	<b>99.0</b>	<b>80.5</b>	<b>3,195</b>	<b>4,410</b>	<b>4,387</b>	<b>9,983</b>	<b>13,783</b>	<b>13,709</b>	<b>72.4</b>	<b>72.8</b>
Argentina . . . .	1) 2,866	5) 3,529	5) 3,672	81.2	78.1	...	21,385	21,071	...	66,827	65,846	...	...
Chile . . . . .	229	189	243	121.1	94.1	...	1,511	2,221	...	4,723	6,941	...	...
Uruguay . . . . .	232	193	163	120.4	142.5	...	1,177	791	...	3,680	2,470	...	...
New Zealand 6) .	344	336	361	102.3	95.3	...	756	1,406	...	2,363	4,393	...	...
<b>GRAND TOTALS .</b>	<b>92,986</b>	<b>84,369</b>	<b>94,657</b>	<b>110.2</b>	<b>98.2</b>	<b>1,015,546</b>	<b>785,054</b>	<b>1,026,251</b>	<b>3,173,576</b>	<b>2,453,289</b>	<b>3,207,021</b>	<b>129.4</b>	<b>99.0</b>

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern —  
 \*) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some  
 countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including  
 spelt and meslin. — 2) Including spelt. — 3) Area expected to be harvested. — 4) Area harvested. — 5) Area sown. — 6) The area  
 figures include also those for feeding and ensilage. — 7) Average 1930 to 1933. — 8) Barley and meslin.

*Latvia:* During the first two decades of October temperatures continued high, being some degrees above normal. During the third decade they fell considerably, in some instances below freezing point. There was much rainfall during the month and field work was hindered, only about half the sowings being carried out owing to the excessively wet weater.

*Lithuania:* The first half of October was marked by mild and sunny weather and the second by frequent rain and rather high winds. The sowings of winter cereals were finished in the middle of October in conditions which were much better than those of September.

*Luxemburg:* Preparatory work for the sowing of winter cereals was carried out in good conditions.

*Poland:* Sowing of winter wheat was carried out in generally favourable conditions (90 % of the reports) except in the provinces of Wilno, Poznan and Pomerania where 40 % of the reporters stated that sowing conditions were unfavourable. In Wilno conditions were too wet while in the western provinces, on the other hand, the work was impeded as a result of the long drought and the inadequate soil moisture.

Crop condition of winter cereals on 15 October was as follows.

	1935	1934
Wheat. . . . .	3 5	3.5
Rye . . . . .	3 6	3.6
Barley. . . . .	3.5	3 4

During the second half of October weather was rather cold and wet, but conditions were mild and dry during the first two weeks of November. Condition of the winter cereal crops at the beginning of November was good in general while in some provinces it was very good.

*Romania:* During the last week of October there was an appreciable fall in temperature in all parts of the country causing slight ground frosts in the north. The first good rains after a long period of drought were experienced during the same period.

There were good rains in the first half of November in Transylvania, Oltenia and West Muntenia. Rains in East Muntenia, Moldavia, Dobruja and most of Bukovin were insufficient. There is an appreciable lack of moisture in South Bessarabia but soil moisture is adequate in the central part of this province.

After the rains of the end of October and the first half of November, the sowing of winter cereals and the work of cultivation were carried on at a faster pace. In all provinces there are many *départements* where the early sown winter cereals are growing normally and where the late seedings have germinated in very satisfactory conditions. In other districts, however, sowings were less extensive and put in rather dry soil and consequently, they will germinate only if rain or snow falls soon.

*Czechoslovakia:* According to the most recent estimate, the area cultivated to meslin this year was about 14,800 acres against 16,500 in 1934 and 20,000 on the average of the five years ending 1933; percentages, 89.7 and 74.0.

The corresponding figures of production are as follows: 219,000 centals (378,000 bushels), 217,000 (374,000) and 281,000 (484,000); percentages 101.0 % and 78.0 %.

September was rather warm on the whole with normal rainfall. October was characterised by temperatures which were a little above normal and by unusually heavy rainfall.

Autumn preparations are either finished or approaching completion. The work was interrupted in several districts by the heavy rains of the end of October. Work is still in progress in some of the higher areas.

Sowing of winter cereals was very difficult in the dry soil. At first, the seedings did not sprout well or evenly; later, however, they benefited from the rains and grew rapidly. On 1 November the condition of the winter wheat crop was 2.5 against 2.4 at the same date last year. Corresponding figures for winter rye were 2.3 and 2.1 respectively.

*Jugoslavia:* At the beginning of October weather was rather warm and wet but later became colder and drier during the second decade of the month. These conditions, which continued during the last decade and in the first days of November, were favourable for sowings of winter cereals, which were almost finished by the beginning of November.

According to the most recent estimate, the harvested area of meslin this year was about 150,000 acres against 143,000 in 1934 and 128,000 on the average of the five years ending 1933, percentages, 104.9 and 117.1. The corresponding production is estimated at about 1,074,000 centals (1,852,000 bushels) against 1,086,000 (1,872,000) and 1,039,000 (1,792,000), percentages, 98.9 and 103.3.

According to the same estimate, the harvested area of spelt this year was about 44,000 acres against 42,000 in 1934 and 42,000 on the average of the five years ending 1933; percentages, 105.5 and 105.0. The corresponding production is estimated at about 267,000 centals against 328,000 and 263,000; percentages, 81.4 and 101.5.

*U. S. S. R.:* Threshing of cereals harvested from an area of 180,273,000 acres, or 87 % of the Plan, had been accomplished by 31 October, compared with 172,638,000 acres, or 85 %, at the same date a year ago.

During the first half of October, the weather in the European part of the country was rather mild and there were copious rains in nearly all regions. Temperatures dropped appreciably at the beginning of November and conditions during the first two weeks of the month were cold, dry and clear.

On 16 November, a considerable part in the north-east of the European territory was snow covered, the snow line beginning at Archangel and passing through Vologda and Ufa to enter the northern part of the Asiatic territory.

By 25 October 89,332,000 acres, or 96 % of the Plan, had been sown to winter cereals, as against 87,998,000 acres, or 95 % of the Plan, at the same date last year.

Autumn work in the fields intended for spring crops had been carried out on 10 November on an area of 107,072,000 acres, or 76 % of the Plan, compared with 90,919,000 acres, or 90 %, at the same date last year.

*Argentina:* The most recent monthly report of the Department of Rural Economy and Statistics of the Ministry of Agriculture of Buenos Aires, issued on 22 October, contains the following information on the wheat crops of Argentina.

*Province of Buenos Aires.* — Conditions were favourable for wheat in south-eastern and central parts of the Province though in the latter area growth was

rather behind the normal. In the Bahia Blanca area rainfall was generally inadequate. Growth is late owing to the drought of recent months and the frequent frosts. Rust was reported to have appeared in some fields. In the west, the crop, though backward, benefited by the rains which fell in October. In the north of the Province, however, yields are expected to be below average owing partly to drought and partly to grass-hopper damage. The position is much better in the north-east.

Province of Santa Fé. — The proportion which will not be harvested in the northern and central parts of the Province will be fairly considerable. The drought was particularly injurious to the late crops. The situation was better in the south. Growth was a month late but 10% of the seedings had eared though somewhat unevenly. In the southern *départements* growth was even and promised good yields. For the Province as a whole a poor crop is to be expected.

Province of Córdoba. — Growth was slow and irregular. In the north, growth was a month later than usual. The early sowings were none too even while the late sowings had hardly begun to sprout but germination was even and vigorous. In the east, rains improved the condition of the crop which, however, on the whole, promises a poor crop. In the south-west higher temperatures were desirable, the crops, on the whole, being unsatisfactory.

Province of Entre Ríos. — Earing has occurred in the eastern areas of the province but plants were backward. In the west lower temperatures were required for the proper development of the crop. The outlook for the Province as a whole has improved since the report issued on 25 September. In the Province of Santiago del Estero and in the National Territory of the Pampa, the crop made progress after the recent rains but growth is still late and uneven.

To sum up, the report suggests that the favourable weather of October has effected considerable change in the crop outlook which previously promised very disastrous results. As a result of the rains, the crop situation is appreciably better. Nevertheless, the coming harvest will be below average partly because the cultivated area this year is smaller, partly because of the losses experienced as a result of the drought over large areas and finally, owing to the low yields secured in some areas.

(Telegram of 23 November): Owing to the weather conditions which have prevailed since the last report, issued on 22 October, the wheat crop is still backward for the time of year. Crop condition is mediocre

Canada: The areas sown this autumn to winter wheat and rye for harvest in 1935-36 are as follows.

	1935-36	1934-35	Average 1929-30 to 1933-34	% 1935-36 1934-35 = 100	Aver = 100
	(1000 acres)				
Winter wheat . . . . .	514	685	693	75 0	74.2
Winter rye . . . . .	536	652	716	82 2	74 8

Crop condition of winter wheat and rye on 31 October was 85 and 76 respectively compared with 105 and 91 at the same date last year. The proportion of land in all Canada intended for next year's crops that had been ploughed up to 31 October 1935 was estimated at 40 % as compared with 43 % at the same date last year.

United States: Conditions in the first half of November were favourable for winter wheat, but in the extreme western part of the belt and in much of the northern the

weather continued dry. Wetness delayed seeding in the southwest but in Oregon there was a partial resumption of operations. Dry weather was experienced in Washington but the season is too late and cold for germination.

*Mexico:* Preparatory field work and the first wheat sowings were carried out in generally favourable conditions. According to the most recent estimates, the production of wheat in the year 1934-35 is 198,000 centals (331,000 bushels) smaller than the outturn indicated by the preceding estimate issued in May. It is 6.1 % smaller than that of last year and 15.4 % below the average.

*Palestine:* The sowing of *afir* cereals, which had been general throughout October, was brought to a conclusion; the land is now in excellent condition for ploughing and the early rain should give a decided impetus to agricultural work in general and assure a maximum area being sown under winter cereals. The use of tractors and chemical fertilizers this season is most marked both in northern and southern districts. The adoption of selected seed wheat is increasing.

*Algeria:* Rains fell in the second half of October and allowed cultivation and sowings to be carried on in excellent conditions after having been delayed two weeks by drought.

*Kenya:* The wheat crop at the end of September was coming into ear in the more important areas and was looking well. Rust was, however, becoming widespread.

The prevalence of rust renders the prospects of export uncertain, but the crop should leave a small surplus above milling requirements, depending upon the proportion which proves to be of millable quality.

*French Morocco:* Fairly heavy rains fell at the end of September and during October, thus putting an end to the drought. Cultivation and sowings began on native holdings during October and some sowings were carried out also on European holdings but, even at the end of the month, only in a few instances. Farmers were waiting for further rains before pushing forward their work.

*Tunisia:* October was characterised by well distributed and higher than average rainfall in northern and central districts, lower than average temperatures and considerable humidity. These conditions were favourable for cultivation and sowing in northern and central areas. Work was proceeding actively and sowings began at the end of October, in most cases in very good conditions, although in some central areas, the rains encouraged a general growth of weeds which called for more work.

In the south, however, the drought was still holding up sowings at the end of October.

*Union of South Africa:* Soaking rains fell in September in the south-western, north-western and south coastal areas of the Cape Province, while beneficial showers also occurred in the Karroo and north-eastern districts. The rainfall was particularly heavy along the south coast, and to some extent adversely affected the crops. Generally, prospects for the winter grain crops were most promising and it was estimated that provided conditions remained favourable, record yields might be expected. Some farmers were already busy harvesting their wheat crops, and on account of the



general absence of rust and other plant diseases, the grain was expected to be of very good quality. In the Orange Free State the rainfall was limited to the southern districts where conditions already shew a considerable improvement. Although the wheat crop was most promising, rains were urgently needed to assure a good crop. Reports indicated that wheat was fairly generally and severely attacked by lice, but rust had not yet made its appearance. Beneficial rains fell in some areas in Natal and the adjoining districts of the Transvaal, where conditions were rapidly improving. Scattered showers occurred in the lowveld areas, but generally drought prevailed. Wheat grown under irrigation was very promising and many farmers were busy harvesting. It was expected that very little dryland-wheat would be reaped in the Transvaal as a result of the scanty rainfall during the winter months. It was estimated in October that the area sown in the autumn of 1935, as compared with areas sown in the autumn of 1934, was 110 % for wheat and 107 % for barley and oats.

*Australia* (Telegram of 14 November): The yield of wheat is expected to be rather poor in a great part of Western Australia. In South Australia, however, the weather was favourable during last month and a plentiful yield is expected. Weather was favourable also in New South Wales and Victoria where there was general rainfall; the conditions and the appearance of the crop in these States is good.

## MAIZE

Little information on the maize crops has been received by the Institute since the publication of the *October Crop Report* and no change has occurred in the prospects of production for this year in the northern hemisphere compared with the outturn of last year and with the average of preceding years as established a month ago.

The maize area in Spain which was recently issued, shows that this crop is now stationary. In Poland also, where the maize crop, compared with other cereals, is of minor importance, the area sown to the crop has remained unchanged during the last six years. In the case of Czechoslovakia, all the figures referring to the crop grown alone and to the mixed crop are known. While the area under the crop grown alone shows a decline of 11.5% compared with 1934, the mixed crop shows an increase of 27.3 %. Total production (crop grown alone *plus* mixed crop) amounts to 7.0 million bushels compared with 9.7 million bushels last year. The second estimate of production in Yugoslavia confirms the first forecast indicating that this year's production is almost as low as the two disastrous crops of 1927 and 1928, which were 83 million bushels and 72 million bushels respectively.

The fifth estimate of production in the United States, issued early in November, practically confirms that made at the beginning of October. Maize production here is 60.6 % larger than the extremely poor crop of 1934 but 11.2 % below the average of the preceding five years. The data on the maize crop of Canada shows a steady increase in the area, and, for this year, an excellent outturn.

The statistical position of the world maize trade has been clarified by the special report made on 15 October by the Department of Rural Economy and

## Maize.

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
	1,000 acres			1934	Average	1,000 centals			1,000 bushels			1934	Average
				= 100	= 100							= 100	= 100
Austria . .	162	160	151	101.1	107.0	2,615	3,417	2,794	4,669	6,102	4,989	76.5	93.6
Bulgaria . .	1,775	1,692	1,796	104.9	98.8	22,244	17,411	19,583	39,722	31,091	34,970	127.8	113.6
Spain . .	1,074	1,072	1,067	100.3	100.7	15,931	17,368	14,971	28,448	31,015	26,733	91.7	106.4
*France 1) . .	876	846	808	92.9	97.3	...	11,241	11,076	...	20,073	19,779	...	...
Hungary . .	2,879	2,777	2,764	103.7	104.2	31,659	46,256	39,508	56,535	82,600	70,550	68.4	80.1
Italy 2) 3) . .	3,251	3,293	3,332	98.7	97.6	50,819	64,510	54,205	90,749	115,197	96,794	78.8	93.8
*Poland . .	231	223	232	103.5	99.6	...	6,059	3,367	...	10,820	6,013	...	...
Romania . .	12,771	12,368	11,653	103.3	109.6	105,822	106,840	121,329	188,969	190,786	216,659	99.0	87.2
*Switzerland . .	2	2	3	100.0	79.1	...	55	68	...	99	121	...	...
Czecho-slovakia 4) 5) . .	193	218	337	88.5	57.2	2,581	3,539	5,158	4,609	6,319	9,211	72.9	50.0
Yugoslavia . .	179	141	...	127.3	...	1,320	1,909	...	2,357	3,409	...	69.1	...
*) 6,738 *) 6,671 *) 6,230	...	...	...	101.0	108.1	52,023	113,631	84,599	92,898	202,912	151,070	45.8	61.5
Canada . .	168	161	142	104.3	118.0	4,348	3,807	2,976	7,765	6,798	5,314	114.2	146.1
United States . .	93,590	87,795	103,353	106.6	90.6	1,238,160	771,191	1,394,160	2,211,000	1,377,126	2,489,572	160.6	88.8
*Manchukuo . .	...	2,774	2,397	...	...	39,683	32,597	36,706	70,863	58,209	65,547	121.7	108.1
*Turkey . .	...	1,079	951	...	...	10,337	10,783	11,013	18,460	19,255	19,667	95.9	93.9
Algeria . .	17	19	23	91.1	74.5	132	158	139	236	282	249	83.8	94.9
Eritrea . .	10	28	24	35.4	40.8	79	194	206	142	346	368	40.9	38.5
Kenya 9) . .	129	123	174	104.8	74.0	2,208	1,939	2,463	3,942	3,462	4,398	113.9	89.6
French Morocco . .	996	986	771	101.0	129.1	2,793	5,425	3,021	4,988	9,688	5,395	51.5	92.4
TOTAL . .	123,753	117,363	131,817	105.4	93.9	1,531,414	1,155,686	1,745,102	2,734,672	2,063,724	3,116,272	132.5	87.8

\* Not included in the total — 1) Area estimated on 1 June — 2) Spring crop (*maggengo*) — 3) Summer crop (*cinquantino*). — 4) Crop grown alone. — 5) Mixed crop. — 6) Area sown — 7) Area expected to be harvested. — 8) Area harvested. — 9) Cultivation by Europeans.

Statistics of the Ministry of Agriculture on the maize stocks in Argentina. This report has become indispensable in view of the enormous increase in domestic consumption which previously made an estimate of the supplies available for exports very uncertain. An estimate of the increase in internal consumption following the severe drought was made at the same time as the report on the supplies existing on 15 October. In view of the serious deterioration of pastures and meadows caused by the persistent drought which in some areas lasted from the beginning of April to the end of September, stockraisers were obliged to feed animals with maize particularly as the latter could be acquired at very low prices.

The enquiry practically confirmed the earlier estimate of production but points out that internal consumption is nearly twice that of a normal year. The normal domestic consumption was estimated at 49,211,000 bushels but the new estimate forecasts 95,272,000 bushels as the consumption in the year 1 April 1935-31 March 1936.

Consequently, the exportable supplies of Argentina are equal to the quantity actually exported between 1 November 1931 and 30 April 1932. Having regard to the fact that the world market succeeded in absorbing more than 236 million

# *Production and Exports of Argentine Maize.*

(Thousands of bushels of 56 lb.).

Crop Year and Commercial Year (May-April)	Production in April-May of the first year indicated	EXPORTS						
		During the first six months following the harvest (May-October)		During the remaining six months up to end of year (November-April)		Total for year		
						Absolute figures		% production = 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1935 (1935/36). . . . .	450,769	1) 167,911	27,985	1) 159,049	14,904	211,850	17,653	82.5
1934 (1934/35). . . . .	256,917	122,424	20,404	89,426	17,742	215,850	17,987	80.6
1933 (1933/34). . . . .	267,765	109,397	18,233	106,453	12,774	231,157	19,263	77.2
1932 (1932/33). . . . .	299,334	154,510	25,752	76,647	26,656	394,599	32,885	94.0
1931 (1931/32). . . . .	419,668	234,664	39,111	159,935	20,266	221,578	18,464	79.0
1930 (1930/31). . . . .	280,623	99,984	16,664	121,594				
Average 1925-1929 (1925/26 -1929/30) . . . . .	278,560	139,069	23,178	84,237	14,039	223,306	18,609	80.2

1) Exports from 1 May to 4 November 1935. — 2) Exportable supplies on 5 November 1935 as estimated by the Argentine Government.

bushels in the half year 1 November 1931-30 April 1932 and that in the same year the contribution of the Danube countries was much larger than that to be expected this year when Hungary will become an importer of substantial quantities and will absorb a large proportion of the Romanian supplies, it may be expected, notwithstanding the decrease in the imports of European countries recorded in the last two years, that the Argentine supplies of this year will be absorbed almost entirely before the new harvest.

V. DE.

*Germany:* According to the recent estimate, the area cultivated to maize for seed this year is about 39,000 acres against 15,500 in 1934 and 6,200 on the average of the five years ending 1933, percentages 252.5 and 633.0.

*Austria:* As a result of the warm autumn weather ripening was good. The grain is full and well developed. Harvesting was finished everywhere at the beginning of November.

*France:* Yields vary a great deal from place to place. The crop, on the whole, appears average.

*Italy:* The summer maize crop (*cinquantino*) made good progress and gave promise of a fairly good crop.

*Romania:* The harvesting of maize was finished also in the north of the country by the middle of November. The proportion of moisture being low, this year's crop can be marketed without delay.

*Yugoslavia:* According to unofficial information, there is a possibility that the export of maize will be prohibited owing to this year's poor crop results and to the exhaustion

of the stocks carried over from last year's large crop, considerable exports having been recorded during the last commercial year. This information, however, has not been confirmed in authoritative quarters.

It is interesting to note, however, that the good maize prices ruling on internal markets are above those of the world market and this will tend to exclude the new crop maize from the central market from which maize is sold for export.

*Argentina:* The latest monthly report of the Department of Rural Economy and Statistics of the Ministry of Agriculture at Buenos Aires, issued on 22 October, contains the following information on the development of the maize sowings in Argentina.

*Province of Buenos Aires:* In the eastern and south-eastern parts of the Province the work of seeding went forward well after the recent rains. The growers in the west, however, were waiting for normal weather which would allow them to proceed with sowings in more favourable conditions. In the north, the first sowings germinated well but growth is slow and grasshopper and frost damage was reported.

*Province of Santa Fé.* — Germination and growth of the first sowings occurred in good conditions.

*Province of Córdoba.* — Sowing went forward actively throughout the Province except for some districts where the work was interrupted by heavy rains. The first sowings germinated well. A considerable expansion in area is expected in this Province as growers are sowing to maize the areas which they failed to sow to other cereals and flax as well as in the area sown to fodder cereals damaged or destroyed by drought. For a similar reason an appreciable increase in the area to be sown to maize is expected in the National Territory of the Pampa, where, however, field work is progressing slowly.

*Province of Santiago del Estero.* -- Sowings are going forward at a rapid pace, facilitated by the reserves of moisture in the soil. The early sowings showed good germination.

According to the most recent estimate, production of maize in 1934-35 is smaller by 1,102,000 centals (1,968,000 bushels) than the first estimate issued in June, being now estimated at 252,430,000 centals (450,769,000), against 143,873,000 (256,917,000) in 1933-34 and 170,217,000 (303,960,000) on the average of the five years ending 1932-33; percentage 175.5 and 148.3.

(Telegram of 23 November): Maize sowings are making good progress, but owing to excessive cold, growth is not vigorous.

*Chile:* According to the most recent estimate, production of maize in 1934-35 was about 1,510,000 centals (2,696,000 bushels) against 1,485,000 (2,652,000) in 1933-34 and 1,574,000 (2,810,000) on the average of the five years ending 1932-33, percentages 101.6 and 95.9.

*Surinam:* Most of the maize fields were harvested during the second quarter of 1935. The condition of the portion remaining to be cut was good.

*Java & Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning maize area:—

	1935 acres	1934 acres
Area harvested in September . . . . .	376,300	345,500
Area harvested from 1 January to 30 September.	4,230,300	3,461,700
Area of standing crops at end of September. .	981,500	1,195,800

*Palestine:* Excellent prospects are apparent for a good yield from the late sown maize crop in the Huleh area.

*Egypt:* Harvesting of maize during October was in full swing in the South of the Delta where it reached about 30 %. It was started in the northern parts of the Delta and Middle Egypt. In Upper Egypt the early cultivations started maturation. The crop is satisfactory. According to a Government estimate, the area sown with *nili* (flood season) maize which represents practically the whole maize crop, is this year 1,583,000 acres, as against 1,628,000 last year and an average of 1,926,000 acres during the five preceding years; percentages: 97.2 % and 82.2 %.

*Kenya:* Much of the maize crop at the end of September was ready for cutting, and a heavy crop was anticipated.

The surplus for export for the season beginning July 1st 1935 and ending June 30th. 1936, is provisionally estimated at 1,300,000 centals (2,320,000 bushels).

## RICE

*Argentina:* Rice sowing went forward actively in the Province of Corrientes and in the National Territory of Misiones. Weather conditions in the Province of Salta were favourable for preparatory work.

*Surinam.* During the second quarter of 1935, after the rains, the first rice sowings were carried out. Transplanting will be much later this year except in the Nickerie district and some other places where the June rains were adequate.

*Taiwan:* Growing conditions of the second crop rice are average.

*India:* The district estimates for the first provincial forecast on the rice crop in Burma for 1935-36 are summarized in the following table.—

		Current year's figures	Difference between current year's figures and corresponding estimate of last year		final figures for last year
		acres		acres	acres
Area sown . . . . .	Lower Burma	9,624,100	—	33,100	— 78,300
	Total Burma	12,395,000	—	218,800	— 292,700
Area estimated as destroyed.	Lower Burma	166,100	+	141,100	+ 90,300
	Total Burma	242,800	+	125,700	— 95,000
Area likely to mature (i. e. area sown less area des- troyed) . . . . .	Lower Burma	9,458,000	—	174,200	— 168,600
	Total Burma	12,152,200	—	344,500	— 197,700

The monsoon broke normally but agricultural operations were retarded owing to insufficient early rains. Standing crop in Lower Burma was generally in good condition, except in flooded areas most of which were being replanted at the beginning of October. More rain was needed in parts of the dry zone of Upper Burma, but elsewhere crops were in very fair condition. The estimated sown and matured areas show considerable

decreases compared with the final figures of last year due to floods in Lower Burma and lack of rain in parts of the dry zone of Upper Burma. A good harvest was however expected if the October rains were favourable.

In Bengal during the second fortnight of October and the first half of November weather was dry, except for local showers, and rain was needed, particularly in the west and north, to help the growth of the transplanted winter paddy. In the first part of November winter rice was being harvested.

### Rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/36	1934/35	Average 1929/30 to 1933/34	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36	
				1934/ 1935	Average age							1934/ 1935	Average age
1,000 acres			= 100	= 100	1,000 centals			1,000 bushels of 45 lb.			= 100	= 100	
Bulgaria . . .	19	20	18	94.7	102.7	380	404	348	844	898	772	94.0	109.3
Spain . . . .	114	114	118	100.5	96.8	6,510	6,473	6,596	14,467	14,384	14,657	100.6	98.7
Italy . . . .	340	323	345	105.1	98.4	14,494	13,602	14,701	32,209	30,226	32,669	106.6	98.6
United States	789	781	890	101.0	88.7	17,415	17,233	18,784	38,700	38,296	41,742	101.1	92.7
Chosen . . .	4,127	4,195	4,073	98.4	101.3	72,898	68,402	68,163	161,992	152,001	151,471	106.6	106.9
India 1) . .	74,082	75,393	75,153	98.3	98.6	—	—	—	—	—	—	—	—
Indo-China:													
Annam 2)	961	945	1,000	101.7	96.1	—	7,540	7,592	—	16,755	16,870	—	—
Tonkin 3)	1,236	1,156	1,208	107.0	102.3	14,037	12,801	14,429	31,192	28,446	32,063	109.7	97.3
Japan . . .	7,855	7,772	7,906	101.1	99.4	233,472	212,116	250,969	518,815	471,359	557,697	110.1	93.0
Taiwan 4)	733	713	664	102.8	110.3	17,710	17,985	14,453	39,354	39,965	32,117	98.5	122.5
Egypt . . .	478	407	336	117.6	142.3	...	11,304	8,920	...	25,120	19,823	...	...

1) First estimate. — 2) First half-year. — 3) Rice of the fifth month — 4) First crop

In Bihar and Orissa during October there was only light rain in parts of the country. In the first decade of November there was no rain. The lack of moisture affected the crops in most areas, and prospects were unsatisfactory. At the beginning of November the harvesting of winter paddy was going on.

In the Central Province weather was clear and warm, except light scattered showers. Sowing of early rice was progressing, but the standing crops on light soil were suffering from drought.

In Assam weather conditions were dry and seasonable. Crop prospects were fair, though hailstorms had damaged crops in Darrang.

In Bombay weather was dry until the middle of the month but after this date good or moderate rains were experienced. Towards the end of October the crops were doing well.

In Madras rain was moderate in the first and last decades of October, while in the second decade heavy rains were experienced in the Carnatic and on the west coast. Sowing and transplanting of rice were proceeding.

*Japan:* The estimate of rice production is lower than that of last month as a result of the unfavourable weather conditions.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning rice area:—

	1935 acres	1934 acres
<i>Area harvested in September:—</i>		
Wet padi . . . . .	333,300	325,400
Dry padi . . . . .	3,900	1,200
<i>Area harvested 1 January to 30 September:—</i>		
Wet padi . . . . .	7,632,900	7,420,900
Dry padi . . . . .	945,700	949,000
<i>Area of standing crop at end of September:—</i>		
Wet padi . . . . .	1,004,300	1,077,000
Dry padi . . . . .	36,100	69,700

*Siam:* The first forecast of the 1934-35 rice crop put the exportable surplus at 1,000,000 metric tons of white rice, but the final crop report showed a heavy decrease as regards both acreage and yield, and it is estimated that the surplus will not amount to more than 1,800,000 metric tons.

As regards the new crop, 1935-36, reports from 60 provinces showed that at the end of September 5,121,000 acres were planted, as against 7,160,000 acres at the same time last year and an average of 6,814,000 for the two preceding years; percentages: 71.5 and 75.2.

The amount of acreage damaged up to the end of September is 319,000 acres, as against 253,000 at the same time last year and an average of 147,000 acres for the two preceding years.

The condition of the crop was as follows: in 10 provinces good and in 39 provinces fairly good; 2 provinces did not state their crop condition.

*Egypt:* The late areas under *sefi* (summer) rice are still ripening. Harvesting has been general in many regions, and is over in most of the areas of the other regions. Threshing, winnowing and storing are in progress. The unit yield is expected to be much above average.

Harvesting of *nili* (flood season) rice started in early cultivations while other areas are completing maturation. The crop is satisfactory.

## POTATOES

*Austria* Potato lifting was finished everywhere at the beginning of November. Yields were rather satisfactory, particularly in Styria and North Tyrol. All the chief producing areas suffered from the drought. Starch content is good.

*Belgium:* Lifting of potatoes is finished. Yields are unsatisfactory.

*Bulgaria:* The dry weather of October was favourable for the lifting of potatoes. The latest official information, issued after the harvest, indicates a slight decrease in production from the first estimate.

*Estonia:* As a result of excessive rain, tubers in some places in the lowlying areas have rotted.

*Irish Free State:* Weather in October was wet, cold and stormy. Lifting of the potato crop was rendered slow and tedious by rains. Much of the crop remained to be dug.

### Potatoes.

COUNTRIES	AREA					PRODUCTION									
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935			
				1934	Average							1934	Average		
														to	to
1,000 acres			= 100	= 100	1,000 centals			1,000 bushels of 60 lbs			= 100	= 100			
Germany (s)	358	585	599	61.1	59.7	30,644	51,851	65,789	51,073	86,417	109,647	59.1	46.6		
Austria (s)	6,458	6,598	6,434	97.9	100.4	842,806	979,488	913,644	1,404,649	1,632,448	1,522,710	86.0	92.2		
Belgium	494	506	484	97.8	102.2	45,191	60,614	58,175	75,316	101,021	96,957	74.6	77.7		
Bulgaria	402	397	418	101.4	96.3	60,848	71,912	81,905	101,411	119,851	136,505	84.6	74.3		
*Denmark	36	35	32	101.7	113.2	2,663	1,857	1,413	4,439	3,094	2,355	143.4	188.5		
*Spain	186	189	169	98.2	110.0	...	30,269	24,500	...	50,447	40,832	...	...		
Estonia	1,060	1,134	991	93.4	107.0	...	106,293	103,223	...	177,152	172,034	...	...		
Finland	182	177	165	102.5	110.5	17,847	19,668	18,530	29,744	32,779	30,883	90.7	96.3		
*France	210	206	185	102.0	113.7	29,035	25,119	21,586	48,391	41,865	35,976	115.6	134.5		
Engl. & W.	3,472	3,449	3,505	100.7	99.1	...	367,139	342,614	...	611,887	571,012	...	...		
*Scotland	463	488	483	95.0	95.9	62,250	77,034	69,758	103,749	128,389	116,263	80.8	89.2		
*N. Ireland	132	140	139	94.3	94.7	18,659	22,960	22,104	31,099	38,267	36,841	81.3	84.4		
Hungary	729	137	141	94.0	91.7	...	20,673	21,293	...	34,455	35,489	...	...		
*Italy	749	717	707	104.5	105.9	31,503	46,709	39,112	52,504	77,848	65,185	67.4	80.5		
Latvia	1,002	1,001	953	100.2	105.2	...	59,672	49,107	...	99,451	81,844	...	...		
Lithuania	306	266	237	115.0	128.8	32,786	31,875	26,273	54,642	53,123	43,787	102.9	124.8		
Luxemburg	461	452	398	102.0	115.9	40,189	54,964	41,234	66,980	91,606	68,722	73.1	97.5		
Malta	41	40	41	100.6	98.9	3,616	4,308	4,431	6,026	7,180	7,385	83.9	81.6		
Norway	8	7	7	116.1	110.4	392	539	597	654	899	994	72.7	65.8		
Netherlands	123	120	118	102.2	103.7	18,692	17,649	19,630	31,152	29,414	32,717	105.9	95.2		
Poland	345	356	414	97.0	83.4	55,003	64,820	73,447	91,670	108,031	122,409	84.9	74.9		
*Romania	7,002	6,825	6,662	102.6	101.1	647,870	737,899	669,965	1,079,762	1,229,807	1,116,587	87.8	96.7		
Switzerland	509	505	483	100.7	105.3	...	42,367	39,367	...	70,610	65,611	...	...		
Czechoslovakia (s)	112	112	115	100.0	97.5	14,551	18,629	15,894	24,250	31,048	26,489	78.1	91.5		
United States	99	97	87	102.1	114.1	4,436	6,705	6,989	7,393	11,174	11,648	66.2	63.5		
Canada	1,750	1,753	1,701	99.8	102.8	...	204,352	199,589	...	340,580	332,641	...	...		
Algeria (s)	507	569	551	89.1	92.0	38,786	48,095	44,527	64,643	80,158	74,212	80.6	87.1		
Eritrea	3,256	3,312	3,188	98.3	102.1	212,400	231,253	205,370	354,000	385,421	342,283	91.8	103.4		
TOTALS	16	14	26	115.2	62.8	812	851	970	1,354	1,418	1,617	95.5	83.7		
	19	20	25	91.4	74.1	1,213	1,407	1,002	2,021	2,345	1,670	86.2	121.0		
	1	2	1	200.0	190.5	8	4	5	13	7	9	180.0	147.5		
TOTALS	21,848	21,899	21,377	98.8	101.3	2,192,541	2,552,250	2,380,246	3,655,836	4,255,313	3,987,010	85.9	92.2		

(1) Area under 500 acres. — s) Early potatoes. — t) Late potatoes.

*France:* Lifting of potatoes, though impeded at the end of October and the beginning of November, was carried out generally in good conditions. It is confirmed that the crop is mediocre or moderate in quality. In many places, rotting has been considerable and the crop may not keep well. In other places, the frosts of the end of October damaged the tubers.

*Great Britain and Northern Ireland:* October was an unusually stormy month but weather, on the whole, was favourable for the growth of root crops. Lifting, however, was hindered in the western half of England and Wales, in Scotland and on heavy lands generally. Clamping was carried out in unfavourable conditions.



In spite of the growth which took place after the end of the drought, potatoes are still below the average in size. Generally, the quality of the potatoes is good but there are more than the usual disparities in yield, some excellent as well as some poor crops being found in the same districts.

In Scotland lifting is considerably backward while the tubers are unsatisfactory in some places.

*Lithuania:* Lifting of potatoes was carried out in good conditions during the fine weather of the first half of October

*Switzerland:* Bad weather further impeded potato lifting. Yields are still rather below first expectations with the result that districts having a good crop will have no difficulty in disposing of their surplus. Demand continues brisk and prices are firmer.

*Czechoslovakia:* Potato lifting is nearly finished. The total yield, while being below the average, is expected to exceed the recent estimates. A very satisfactory crop is reported from some districts.

*Chile:* According to the most recent estimate, production of potatoes in 1934-35 was about 10,196,000 centals (16,993,000 bushels) against 13,477,000 (22,461,000) in 1933-34 and 9,576,000 (15,960,000) on the average of the five years ending 1932-33; percentages, 75.7 and 106.5.

*Palestine:* The planting of potatoes under irrigation has been concluded. The Department of Agriculture is purchasing seed potatoes from the United Kingdom for resale to farmers.

*Algeria:* The rains which fell during the second half of October facilitated the planting of early potatoes which the previous drought had delayed. Sprouting in plantations which received rains was very satisfactory at the beginning of November.

*Tunisia:* The rains of October were favourable to the potato plantations.

## SUGAR

The weather between the middle of October and the middle of November in the countries which had not begun or which had not completed the lifting of the sugar-beet crop was favourable for the crops, though it was sometimes too wet. Liftings were made in good conditions though they were delayed or held up by the rains. More serious difficulties were met in fields which were still hard after the recent drought, but, fortunately, these fields represent only a small proportion of the total area sown to sugar-beet in Europe.

Some of the estimates of the probable beet production published last month have been modified in the light of information received by the Institute since the publication of the *October Crop Report*. As a result of the favourable weather conditions which prevailed during October and the first two weeks of November, the estimates published in the *October Crop Report* have been

increased in the case of Germany, Austria, Bulgaria, Denmark, the Irish Free State, Romania, Sweden and Yugoslavia. On the other hand, there are decreases in the estimates of Great Britain, Italy and the Netherlands. The total decrease however, is smaller than the increase recorded in the former group of countries.

*Production of Beet Sugar (raw).*

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1935-36	
	1935-36 <sup>1)</sup>	1934-35	Average 1929-30 to 1933-34	1935-36 <sup>1)</sup>	1934-35	Average 1929-30 to 1933-34	1934-35 = 100	Average = 100
Thousand centals			Short tons					
Germany . . . . .	35,371	37,104	38,134	1,768,522	1,855,197	1,906,664	95	93
Austria . . . . .	4,068	4,921	3,390	203,401	246,028	169,482	83	120
Belgium . . . . .	5,567	5,859	5,412	278,300	292,935	270,574	95	103
Bulgaria . . . . .	419	47	821	21,000	2,368	41,043	885	51
Denmark . . . . .	5,071	1,984	3,651	250,000	100,000	182,563	256	139
Spain . . . . .	4,938	7,496	6,136	247,000	370,000	306,780	66	80
Irish Free State . .	2,138	1,643	513	107,000	82,168	25,641	130	417
Finland . . . . .	176	262	102	9,000	13,098	5,088	67	173
France . . . . .	21,297	26,959	21,875	1,065,000	1,347,941	1,093,743	79	97
Great Britain . . . .	13,228	14,664	8,385	700,000	733,214	419,254	90	158
Hungary . . . . .	2,183	2,638	3,727	109,000	131,910	186,335	83	59
Italy . . . . .	6,834	7,275	8,298	340,000	360,000	414,877	94	82
Latvia . . . . .	915	1,336	362	45,700	66,790	18,119	68	252
Lithuania . . . . .	584	335	248	29,200	16,767	12,402	174	236
Netherlands . . . . .	4,716	5,120	5,394	235,800	255,996	269,701	92	87
Poland . . . . .	9,755	9,855	12,984	487,800	493,000	649,209	99	75
Romania . . . . .	2,646	2,568	2,501	130,000	128,400	125,041	103	106
Sweden . . . . .	6,358	5,992	4,375	317,900	299,572	218,737	106	145
Switzerland . . . . .	187	187	149	9,400	9,400	7,452	100	126
Czechoslovakia . . .	12,289	14,025	18,295	614,434	701,251	914,719	88	67
Yugoslavia . . . . .	2,017	1,378	2,088	100,900	68,920	104,375	146	97
<i>Total Europe a).</i>	<i>140,757</i>	<i>151,648</i>	<i>146,840</i>	<i>7,069,357</i>	<i>7,574,955</i>	<i>7,341,799</i>	<i>93</i>	<i>96</i>
U. S. S. R. . . . .	39,683	31,765	25,945	1,984,000	1,588,000	1,297,209	125	153
<i>Total Europe b).</i>	<i>180,440</i>	<i>183,413</i>	<i>172,785</i>	<i>9,053,357</i>	<i>9,162,955</i>	<i>8,639,008</i>	<i>98</i>	<i>104</i>
Canada . . . . .	1,433	1,295	1,215	72,000	64,773	60,746	111	118
United States . . . .	27,558	24,817	27,445	1,380,000	1,240,848	1,372,231	111	100
<i>Total North Amer.</i>	<i>28,991</i>	<i>26,112</i>	<i>28,660</i>	<i>1,452,000</i>	<i>1,305,621</i>	<i>1,432,977</i>	<i>111</i>	<i>101</i>
Japan . . . . .	1,102	863	581	60,000	43,170	29,074	128	190
Turkey . . . . .	1,422	1,300	637	71,100	64,994	31,860	109	223
<i>Total Asia . .</i>	<i>2,524</i>	<i>2,163</i>	<i>1,218</i>	<i>131,100</i>	<i>108,164</i>	<i>60,934</i>	<i>117</i>	<i>207</i>
GENERAL { a)	172,272	179,923	176,718	8,652,457	8,988,740	8,835,710	96	97
TOTALS { b)	211,955	211,688	202,663	10,636,457	10,576,740	10,132,919	100	105

a) Not including U. S. S. R. — b) Including U. S. S. R — r) Approximate data.

It should be noted, however, that the increase in the estimates of a number of these countries was due not only to weather conditions but also to the fact that the earlier estimates, in the absence of some factor in the evaluation of the crops, had been kept low, possibly with excessive caution.

In the case of the U. S. S. R., the noticeable increase in the estimate of sugar-beet production in 1935 leads to a rough modification in the corresponding estimate of sugar production.

There were increases also in the totals of the beet producing countries of North America and Asia resulting from increases in the United States and Turkey. A month ago the production in Turkey was roughly estimated to be appreciably below that of the year 1934-35 after making allowance for the substantial decrease in the cultivated area, for the unfavourable growing conditions and for the decision taken by the Sugar Association to close the Usciak factory. In the table given in this issue the former estimate has been replaced by a new figure supplied by the Central Statistical Office of Ankara which indicates, on the contrary, an appreciable increase on last year.

*The figures in the following table  
are supplied by the "Association Internationale Sucrière" of Vienna.*

COUNTRIES	Sugar-beet worked up		Raw sugar	
	1935	1934	1935-36	1934-35
THOUSAND CENTALS				
Germany . . . . .	215,600	223,534	35,371	37,104
Austria . . . . .	22,844	31,072	4,068	4,920
Belgium . . . . .	33,797	39,463	5,137	5,889
Denmark . . . . .	33,069	17,154	5,181	1,992
Irish Free State . . . . .	13,713	10,997	2,132	1,639
Hungary . . . . .	14,771	17,485	2,161	2,638
Italy . . . . .	48,061	56,344	6,945	7,466
Poland . . . . .	56,879	56,784	9,722	9,832
Romania . . . . .	15,212	15,678	2,491	2,370
Sweden . . . . .	39,705	40,574	6,358	5,991
Czechoslovakia . . . . .	73,006	83,274	12,289	14,055
Yugoslavia . . . . .	12,453	11,223	2,031	1,390
Turkey . . . . .	7,275	8,885	1,257	1,455
<b>Total . . . . .</b>	<b>586,385</b>	<b>612,467</b>	<b>95,143</b>	<b>96,741</b>
SHORT TONS				
Germany . . . . .	10,779,837	11,176,564	1,768,522	1,855,196
Austria . . . . .	1,142,204	1,553,565	203,401	245,988
Belgium . . . . .	1,690,000	1,970,000	256,860	294,444
Denmark . . . . .	1,700,000	857,700	259,000	99,580
Irish Free State . . . . .	686,000	549,800	106,600	81,932
Hungary . . . . .	740,000	874,242	108,000	131,920
Italy . . . . .	2,400,000	2,817,173	347,000	373,270
Poland . . . . .	2,840,000	2,839,140	486,000	491,572
Romania . . . . .	760,000	783,891	125,000	118,483
Sweden . . . . .	1,985,000	2,028,694	317,900	299,543
Czechoslovakia . . . . .	3,650,258	4,163,622	614,434	702,739
Yugoslavia . . . . .	622,642	561,130	101,537	69,518
Turkey . . . . .	360,000	444,000	63,000	73,000
<b>Total . . . . .</b>	<b>29,355,941</b>	<b>30,619,521</b>	<b>4,757,254</b>	<b>4,837,185</b>

Total world production in 1935-36 according to the new estimates is practically equal to that of 1934-35 and represents 105% of the average production of the five preceding years.

This month's issue also contains a table showing the stocks of both cane and beet sugar (1), compared with those at the same date in 1934 and in the

(1) Many of these figures are taken from the *Monthly Report on Sugar and Die Weltzuckerstatistik* of Licht.

## Visible stocks of sugar on 1 September.

COUNTRIES	1935	1934	1933	1932	1931	1930	1929
(Thousand centals)							
Germany . . . . .	8,470	5,688	7,524	16,453	16,378	6,850	5,165
Austria . . . . .	1,422	196	315	154	672	278	168
Belgium . . . . .	1,453	1,162	1,241	1,455	1,874	1,351	1,517
Spain . . . . .	4,416	3,091	3,772	4,312	1,894	1,127	1,563
France . . . . .	8,647	4,491	5,304	4,833	6,784	4,689	4,482
United Kingdom . . . . .	4,852	5,944	6,989	4,663	4,828	5,415	3,666
Hungary . . . . .	620	646	875	600	1,043	320	284
Italy . . . . .	5,928	5,895	4,669	5,741	5,922	5,115	3,966
Netherlands . . . . .	4,070	4,332	3,327	2,937	3,530	2,302	2,249
Poland . . . . .	2,317	2,183	3,783	3,893	5,822	3,510	1,790
Sweden . . . . .	2,754	2,972	2,156	2,088	2,568	1,947	2,116
Czechoslovakia . . . . .	2,266	1,997	2,989	4,676	6,905	2,529	1,991
<i>Total Europe . . . . .</i>	<i>47,215</i>	<i>38,597</i>	<i>42,944</i>	<i>51,805</i>	<i>58,220</i>	<i>35,433</i>	<i>28,957</i>
Canada . . . . .	2,176	2,141	2,127	2,103	1,847	1,860	1,517
Cuba . . . . .	28,149	45,623	49,567	52,369	56,042	61,134	30,710
United States (ports) . . . . .	14,493	17,271	9,513	11,804	12,088	10,362	19,989
Puerto Rico . . . . .	4,378	7,300	1,975	3,814	3,836	2,910	2,624
Java . . . . .	34,026	53,156	65,945	64,280	43,610	32,880	29,566
Philippines . . . . .	419	1,014	22	516	0	626	291
Afloat . . . . .	7,055	5,291	5,534	7,165	5,776	4,850	4,652
<i>TOTAL . . . . .</i>	<i>137,911</i>	<i>170,393</i>	<i>177,627</i>	<i>193,856</i>	<i>181,419</i>	<i>150,055</i>	<i>118,306</i>
(Thousand short tons)							
Germany . . . . .	424	284	376	823	819	342	258
Austria . . . . .	71	10	16	8	34	14	8
Belgium . . . . .	73	58	62	73	94	68	76
Spain . . . . .	221	155	189	216	95	56	78
France . . . . .	432	225	265	242	339	234	224
United Kingdom . . . . .	243	297	349	233	241	271	183
Hungary . . . . .	31	32	44	30	52	16	14
Italy . . . . .	296	295	233	287	296	256	198
Netherlands . . . . .	203	217	166	147	176	115	112
Poland . . . . .	116	109	189	195	291	175	90
Sweden . . . . .	138	149	108	104	128	97	106
Czechoslovakia . . . . .	113	100	149	234	345	126	100
<i>Total Europe . . . . .</i>	<i>2,361</i>	<i>1,931</i>	<i>2,146</i>	<i>2,592</i>	<i>2,910</i>	<i>1,770</i>	<i>1,447</i>
Canada . . . . .	109	107	106	105	92	93	76
Cuba . . . . .	1,407	2,281	2,478	2,618	2,802	3,057	1,536
United States (ports) . . . . .	725	864	476	590	604	518	999
Puerto Rico . . . . .	219	365	99	191	192	146	131
Java . . . . .	1,701	2,658	3,297	3,214	2,180	1,644	1,478
Philippines . . . . .	21	51	1	26	0	31	15
Afloat . . . . .	353	265	277	358	289	243	233
<i>TOTAL . . . . .</i>	<i>6,896</i>	<i>8,522</i>	<i>8,880</i>	<i>9,694</i>	<i>9,069</i>	<i>7,502</i>	<i>5,905</i>

## Sugar production.

(U. S. S. R. not included).

	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30	1928-29
(Thousand centals)							
Europe . . . . .	151,216	132,332	121,607	130,183	188,231	160,080	153,899
Total . . . . .	529,552	543,882	523,445	556,427	601,247	593,553	584,712
(Thousand short tons)							
Europe . . . . .	7,561	6,616	6,080	6,509	9,411	8,004	7,695
Total . . . . .	26,477	27,194	26,172	27,821	30,062	29,677	29,235

five preceding years. The figures comprise the stocks of many of the sugar producing countries of Europe and those of Canada, Cuba, the United States, Puerto Rico, Java, the Philippines and the stocks afloat, giving a total representing four fifths of the world stocks. Reliable estimates for other countries are not available but the figures available are sufficient to give an idea of the world stocks position.

The decline in stocks in Europe began in 1931 and continued uninterruptedly until 1934 but at the 1 September 1935 the total was again increasing. The growth is to be attributed chiefly to Germany, Spain, Czechoslovakia, Italy, Austria, Poland, France and Belgium and it corresponds in most cases with the increase in the production of beet sugar. In the non-European countries stocks declined continuously from 1932 and, at the end of the year 1934-35 they showed a further and considerable decline which offset the increase experienced in Europe and which caused a further decline in the general total. The large drop in the non-European countries is due principally to Java, where there was a considerable contraction in the cultivated area, and to Cuba as a result of the substantial growth in exports.

An examination of the apparent consumption of cane and beet sugar, based on imports and exports, on the movements of stocks at the beginning and end of the year and on production, shows that, in both European and non-European countries, the quantity consumed during the year 1 September 1934 to 31 August 1935 was higher than that of last year. This conclusion is largely confirmed by the estimates of consumption published by several countries. These estimates show that the increase in consumption in 1934-35 in Germany, Belgium, Spain, France, Great Britain, Hungary, Italy, the Netherlands, Poland and Sweden was greater than the decline recorded in other European countries. Estimates have not yet been issued for non-European countries but the increase is confirmed by private estimates issued in the United States, which is among the first countries to issue data.

A recovery in consumption occurred in Europe during the year 1933-34 compared with the preceding year. In the non-European countries, however, the recovery began during the year which has just closed. This general increase gives grounds for hoping that, after a long period of uncertainty, the world sugar position is on the way to a improvement.

E. R.

*Austria:* The growth of roots continued up to the time of lifting but they are still rather small. The sugar content is comparatively high. Lifting was carried out with difficulty owing to the hardness of the soil. In some places operations were completed only after the rains.

*Belgium:* Sugar-beets, on the whole, were lifted in good conditions without excessive hindrance by rains. The yield is rather light.

*Irish Free State:* Weather in October was wet, cold and stormy. Liftings were impeded by these conditions.

*France:* Lifting and carting were carried out generally in good conditions though they were impeded in some places by rains at the beginning of November. It is confirmed that the total yield is average and that the sugar content of the roots is low, the latter being further reduced by the rain.

### Sugar-beet.

PRODUCTS	AREA					PRODUCTION							
	1935	1934	Aver- age 1929 to 1933	% 1935		1935	1934	Average to 1933	1935	1934	Average to 1933	% 1935	
				1934	Aver- age							1934	Aver- age
			1,000 acres								1,000 centals		
Germany . .	920	881	936	104.5	98.3	217.171	229.157	235.911	10,858	11,458	11,795	94.8	92.1
Austria. . .	107	123	98	87.3	109.5	23,327	30,602	20,856	1,166	1,530	1,043	76.2	111.8
Belgium . .	130	136	135	95.8	96.7	34,827	37,252	35,949	1,741	1,863	1,797	93.5	96.9
Bulgaria . .	17	4	39	413.4	43.6	3,401	422	5,945	170	21	297	805.2	57.2
Denmark . .	123	118	89	103.8	137.6	...	23,092	26,092	...	1,155	1,305	...	...
Finland . . .	7	7	5	102.1	149.6	1,543	2,227	881	77	111	44	69.3	175.2
France . . .	x) 661	707	669	93.5	98.9	...	193,776	165,472	...	9,689	8,274	...	...
Engl.and W.	367	396	286	92.6	128.4	...	90,317	54,733	...	4,516	2,737	...	...
Scotland . .	7	8	1	98.2	661.1	...	1,608	187	...	80	9	...	...
Hungary . .	109	110	145	98.9	75.0	16,246	20,332	25,695	812	1,017	1,285	79.9	63.2
Italy . . .	227	224	252	101.5	90.0	...	58,466	57,694	...	2,923	2,885	...	...
Latvia . . .	38	36	26	107.6	145.0	...	7,404	3) 4,094	...	370	3) 205	...	...
Lithuania . .	17	10	4) 8	178.1	220.1	...	2,097	1,254	...	105	63	...	...
Netherlands.	101	104	117	96.7	85.7	29,923	39,370	38,399	1,496	1,968	1,920	76.5	77.9
Poland . . .	292	277	389	105.3	74.9	...	56,582	73,544	...	2,889	3,677	...	...
Rumania . .	84	92	87	91.5	96.2	...	14,287	13,370	...	714	669	...	...
Sweden . . .	5) 122	125	94	98.0	129.0	...	41,049	27,562	...	2,052	1,378	...	...
Switzerland .	4	4	3	96.8	113.1	...	1,543	1,023	...	77	51	...	...
Czechoslov.	387	393	468	98.6	82.7	77,056	93,495	109,113	3,853	4,675	5,456	82.4	70.6
Yugoslavia .	5) 69	64	112	108.0	62.0	...	10,583	16,724	...	529	836	...	...
U. S. S. R. .	2,763	2,923	2,940	94.5	94.0	341,718	209,440	211,071	17,086	10,472	10,553	163.2	161.9
Canada. . .	53	52	48	101.7	110.9	9,260	8,254	9 016	463	413	451	112.2	102.7
United States	775	766	785	101.2	98.8	172,000	149,620	178,068	8,600	7,481	8,903	115.0	96.6

1) Estimate of 1 June. — 2) Average 1932 and 1933. — 3) Year 1933. — 4) Average 1930 to 1933. — 5) Unofficial figure.

*Great Britain and Northern Ireland:* October was an unusually stormy month but not unfavourable for the growth of root crops. Lifting was interfered with to some extent.

Sugar beet is a variable crop this year and over the whole country the yield is likely to be appreciably less than in 1934.

*Poland:* The lifting of sugar-beet had been finished everywhere by the middle of November. The yields were, on the whole, average. In Poland, the provinces of Silesia, Lodz, Kielce, Lublin and Polesia yields were good but in Poznan they were average.

*Czechoslovakia:* Lifting of the sugar-beet crop is already well advanced in most areas and is completed in some places. The work was frequently impeded by the late rains. According to the estimates of the crop reporters, the yield over the whole country will not be equal to that of normal years.

*U. S. S. R.:* The lifting of sugar-beet was practically finished at the beginning of November. 98 % of the area was harvested yielding 335,558,000 centals (16,778,000 short tons). According to the Plan, total production for this year was placed at 336,206,000 centals (16,810,000 short tons) that is 125,664,000 centals (6,283,000 short tons) more than the total crop of 1934.

At the beginning of November 300,000,000 centals (14,883,000 short tons) had been sent to the factories.

The production of sugar from the beginning of the present sugar year up to 1 November was 18,711,000 centals (936,000 short tons) against 12,538,000 centals (627,000 short tons) during the corresponding period of last year.

*Surinam:* Weather was favourable for sugar cane during the second quarter of 1935. Sugar production was satisfactory. There was little damage from disease.

*Puerto Rico:* According to the latest estimate, the quantity of sugar cane produced in 1934-35 for grinding amounts to 127,824,000 centals (6,391,190 short tons) against 181,515,000 centals (9,075,750 short tons) in 1933-34 and an average in the preceding four years of 149,098,000 centals (7,454,880 short tons); percentages, 70.4 and 85.7. The production of sugar in 1934-35 is estimated at 15,628,000 centals (781,390 short tons) against 22,076,000 centals (1,103,820 short tons) in 1933-34 and an average in the preceding five years of 16,169,000 centals (808,450 short tons); percentages, 70.8 and 96.7).

*Taiwan:* Crop condition of young plantations is average but that of old plantations is mediocre.

*India:* In the United Provinces dry weather predominated in October. Towards the middle of the month crop condition was reported as being good and prospects were favourable.

Also in the Punjab dry weather was prevalent, only light rains having fallen in the second week of the month and at the beginning of November. Crop condition was average to good in irrigated areas and under average in unirrigated areas. In the second week of October some damage from top-borer was reported. In Bihar and Orissa light rains fell in Darbhanga, Cuttack, Balasore and Puri. In the two weeks — ending 11 November there was no rain. Crop condition was fair except in flooded areas.

In Bengal during the second fortnight of October and the first half of November the weather was dry, except for local showers, and rain was needed to help growth of the canes.

In Madras rain was moderate in the first and last decades of October, while in the second decade heavy rains were reported in the Carnatic and on the west coast. Crop condition was fair.

In Bombay during the week ending 19 October there was no rain, while in the following week good rains fell in the Karmatak and the South Deccan and towards the end of the month moderate rains were experienced everywhere except in Gujarat where rainfall was light. The crop was generally doing well but more rain was needed.

*Java and Madura (Aneta):* Weather in the first half of November was characterised by the change from the east monsoon to the west and by great heat. There were local rains. The canes were good in appearance but in some places damage resulting from lack of water and *fusarium* were reported.

*Egypt:* Growth of sugar cane is in progress in early and general cultivations. Some of the areas are being cut for local consumption. A strong wind blow during the second week of October in Qena, where it was followed by rain which slightly affected the newly watered farms resulting in the laying of many stalks. The crop is, however, satisfactory on the whole.

*Mauritius:* According to the most recent estimate, production of cane sugar this year is about 6,173,000 centals (308,600 short tons) against 3,943,000 (197,200) in 1934-1935 and 4,990,000 (249,500) on the average of the five years ending 1933-34; percentages 156.5 and 123.7.

*Union of South Africa:* September crop condition averaged 7 % below normal. Very dry weather prevailed and rain was badly needed.

## VINES

Official estimates of this year's wine production are available only for Algeria, Spain, Romania, Austria, Switzerland and Luxemburg. Italy and Bulgaria, however, have issued estimates of their crops of grapes for wine and from these is possible to assess their wine production fairly exactly. In the case of Yugoslavia, unofficial forecasts are available while partial statistics for certain areas in France and the information on the yields obtained in other countries simplify the task of forecasting. The countries about which there is some uncertainty are Portugal, Greece and Germany. The total information available makes possible the following conclusions on this year's total wine production in the northern hemisphere.

As regards France and North Africa, a very high yield, at least equal to the unusually high yield of last year, is recorded in the four large wine producing *départements* of the south of France. The total outturn in the other areas of France is below that of 1934 and 1922, when the highest yields of post-war years were recorded, but it approaches the yields of good years and is appreciably larger (by 10 to 15 %) than the average of the five years 1929 to 1933. Yields in North Africa were, on the whole, mediocre, except in Tunisia, and total production, which is still however 6 to 15 % larger than the average owing to the new plantings, is one fourth smaller than last year's and will certainly fall short of that of 1932. The total production of this group, which is about 400 million Imperial (450 million American) gallons smaller than last year, seems to be between 1,760 Imperial (2,110 million American) gallons and 1,870 million Imperial (2,250 million American) gallons. It is thus still 13 to 20 % larger than the normal, whether one takes as the latter either the average of the five years 1929 to 1933 or that of the ten years 1924 to 1933. It is undoubtedly larger than any crop of the post-war years with the exception of the two unusual years 1922 and 1934. This is the result of the favourable weather conditions which obtained in most areas, and, more particularly, of the absence of cryptogamic disease but it must not be forgotten that the new plantings made in the south of France and in North Africa are now in full production. Greater productivity in the vineyards of France and North Africa is the outcome of the last factor.



Italian production is good, being between 950 million Imperial (1,140 million American) gallons and 990 million Imperial (1,190 million American) gallons and presents a sharp contrast with that of the two preceding years; it is, in addition, about 15 % larger than the average of the five years 1929 to 1933. It is, however, about equal in magnitude to the crops of the five post-war years, 1924, 1925, 1928, 1929 and 1932, slightly smaller than those of four post-war years and very much below the unusually large crop of 1923; it is at most only 44 million Imperial (53 million American) gallons larger than the average of the ten years 1923 to 1932, 44 million Imperial (53 million American) gallons to 88 million Imperial (106 million American) gallons larger than the average of

*Vines.*

COUNTRIES	AREA					PRODUCTION OF WINE									
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935			
				1934	Average							1934	Average		
														to 1933	to 1933
1,000 acres					1,000 Imperial gallons			1,000 Amer. gallons			100				
Germany .	200	209	204	95.5	98.1	...	† 99,535	† 49,243	...	† 119,533	† 59,137	...	...		
Austria . s)	67	67	71	100.0	93.5	26,397	19,996	22,737	31,700	24,013	27,305	132.0	116.1		
Bulgaria . s)	237	229	203	103.8	116.9	...	† 58,020	† 44,028	...	† 69,677	52,874	...	...		
Spain . . 1)	...	3,389	3,302	...	...	† 361,589	† 477,760	† 454,254	† 434,236	† 573,746	† 545,518	132.0	116.1		
France s) 2)	3,999	4,008	3,986	99.8	100.3	...	1,718,979	1,193,676	...	2,064,339	1,433,497	...	...		
Italy . . m)	2,415	2,413	2,204	100.1	109.5	...	672,008	845,416	...	807,021	1,015,268	...	...		
Luxemb s)	7,274	7,288	7,828	99.8	92.9	...	1,540	† 3,073	† 1,454	† 1,849	† 3,690	† 1,746	50.1	105.9	
Romena .	3	3	3	100.0	85.5	178,180	191,468	165,023	213,978	229,935	198,178	93.1	108.0		
Switzerland.	33	33	32	100.0	102.9	21,998	18,698	10,868	26,417	22,455	13,051	117.6	202.4		
Czechoslov.	58	52	46	111.1	126.4	...	7,228	8,471	...	8,680	10,173	...	...		
Algeria s). .	965	955	759	101.0	127.2	406,955	484,887	340,765	488,716	582,306	409,228	83.9	119.4		

u) Unmixed crop. — m) Mixed crop. — s) Area, bearing. — †) Most. — 1) Vineyard for wine — 2) The whole of the vineyard. For the area, estimate on 1st June, including vines which are pulled-up in the year (163,000 acres in 1934, 272,000 acres in 1933, 198,000 acres in 1932)

the five years 1928 to 1932 and 66 million Imperial (79 million American) gallons to 110 million Imperial (132 million American) gallons larger than the ten year, 1924-1933, average. So far as it is possible to judge, the productivity of Italian vineyards, after shrinking during the last five or six years, now appears to be increasing as a result of anti-phloxera measures and the national reorganisation of the viticultural industry.

Precise data on Portugal and Greece is not available and only general impressions can be given for the three great exporting countries, including Spain, as a whole. These suggest that the total crop of this group is below the average of the preceding five years, which was 620 million Imperial (740 million American) gallons. All three countries experienced various adverse weather conditions, Spain and Portugal in particular, where there was a severe drought. Moreover,

though, as we have already indicated, the productivity of the vines of Portugal and Greece, appears to have grown in recent years, that of Spanish vines is clearly contracting.

The Danube countries, taken altogether, have obtained a crop smaller than that of last year but almost equal to the average of the preceding five years, which was 370 million Imperial (450 million American) gallons. Bulgaria alone records a crop rather equal to that of last year which was itself excellent; it is about 60 % larger than the average of the five years 1929-1933. The provisional estimate of the Romanian crop is smaller than the forecasts made hitherto which were based on the excellent appearance of the crop at the moment of gathering. While there is a possibility of a revision, it is necessary to point out that consumption, and, more particularly, exports of fresh table grapes developed considerably last year. The crop in Yugoslavia is substantially smaller than that of 1934 and the average. The Hungarian yield is nearly average.

Turning to Central Europe, Switzerland reports a record production twice as large as the average of the years 1929-1933. Production in Austria is larger than the mediocre output of last year and the average. The production in Germany is clearly smaller than the very unusual crop of last year, but it is satisfactory and probably above the average. Results in Czechoslovakia and Luxemburg are about average. The total production of these four countries is distinctly smaller than that of last year but it is probably larger than the average, which was 86 million Imperial (103 million American) gallons.

California reports a very good outturn larger than any earlier year; it is 20 % larger than that of 1934 and amounts to nearly 60 million Imperial (75 million American) gallons.

The available information, which is largely provisional and in part tentative, indicates that production in the northern hemisphere as a whole, excluding the U. R. S. S., is between 3,810 and 3,950 million Imperial gallons (4,570 and 4,750 million American gallons) or 285 to 430 million Imperial gallons (340 to 520 million American gallons) smaller than the exceptionally large crop of last year but larger than all other post-war crops, with the possible exception of that of 1925, and 310 to 460 million Imperial gallons (370 to 555 million American gallons), or 9 to 13 %, larger than the 1929-33 average. The modification in the total estimated in September is due partly of the fact that the forecasts of several countries, France in particular, were too small and partly to the conditions prevailing during the gathering of the grapes which allowed the whole of the crop to be saved and which to some extent improved ripening. Consequently what appeared then to be the maximum total now seems to be only the minimum yield.

The estimates of the 1934-35 crop in the southern hemisphere are still scanty. The available information seems to indicate a total approaching that of the last two years and exceeding the average of the five years 1929-30 to 1933-34 by 40 to 70 million Imperial gallons (50 to 80 million American gallons). Production in this hemisphere now appears to be stabilized, first because the expansion in the extent of the vine area and its productivity now appear to have ceased and because some countries, especially Argentina, have taken steps to leave surplus

grapes unpicked. Attention should be drawn, moreover, to the substantial revisions made in the figure for the area of vineyards in Brazil and in the estimates of the production of previous years. The estimates of wine production which were fixed at 34,710,000 Imperial (41,690,000 American) gallons in 1930-1931 and at 41,360,000 Imperial (49,660,000 American) gallons in 1931-32 have been changed to 20,630,000 Imperial (24,120,000 American) gallons and 15,090,000 Imperial (18,120,000 American) gallons respectively; these revisions entail similar modifications in the figures for the total production of the southern hemisphere.

P. de V.

\* \* \*

*Austria:* As a result of the fine weather, gathering of grapes was put forward to the middle of October in many vineyards and sugar content was consequently further increased. All the viticultural areas report good results while in some places there are record crops.

Condition of vineyards on 1 November was 1.6 against 1.7 on 1 October this year and 2.1 on 1 November 1934.

*Bulgaria:* Weather conditions in October were favourable for gathering of grapes which was completed at the beginning of November. The must production this year is not yet known, but, to judge from the first estimate of the production of grapes for wine, which is very high, it will probably be plentiful and larger than that of last year.

The operations necessary to protect vines during the winter have been completed.

*Spain:* Picking was done in generally favourable weather and was finished at the end of October. The quality and glycometric degree of the musts appear good on the whole. According to some indications, the decrease in the crop will be smaller than it was expected to be and the expectation that the crop will be small and below average is confirmed.

The production of grapes for wine this year is estimated at 59,788,000 centals against 73,201,000 centals in 1934 and an average of 69,679,000 centals in the five years 1929-33, percentages 81.7 and 85.8. The production of table grapes was estimated at 4,818,000 centals this year against 5,468,000 centals in 1934 and an average of 4,717,000 centals; percentages, 88.1 and 102.2.

*France:* Gathering, which was finished in the south in the middle of October, was carried out in other areas in favourable weather. Nevertheless, the rains which were experienced at the end of October caused some damage in the west central part of the country, in the valley of the Loire and in the east.

The estimates made in September require slight modifications. The crop in the four southern *départements* exceeded the estimates. The department of Hérault produced nearly 400 million Imperial (480 million American) gallons more than last year. In the *département* of Aude the crop seems to be slightly larger than that of 1934, in Gard about the same and in the Eastern Pyrenees slightly smaller. There is general agreement that the outturn of these four *départements* is greater than that of last year, which was also unusually large, and some estimates place it in the neighbourhood of 7,200 million Imperial (8,700 million American) gallons. This result, though undoubtedly due to favourable weather conditions, is also attributable to the entry into production of the young vines planted in recent years.

The crop in the south-east (Var, Bouches-du-Rhône, Vaucluse) appear to be slightly smaller than last year's. In the south-west, the yield seems larger than that of last year in haut-Languedoc and Gascogne but noticeably smaller in Bordelais, Dordogne and Charentes. The total for this area will be 90 to 110 million Imperial (105 to 130 million American) gallons smaller. A still more appreciable decrease, amounting to 30 or 40 %, is reported for the whole of the Loire area, a smaller decrease in the east-central part, Bourgogne and Beaujolais, Mâconnais, Côtes du Rhône and Jura, and in the east, Champagne and Alsace.

These modifications make it necessary to increase the September estimate by 110 to 130 millions Imperial (130 to 160 million American) gallons. Thus this year's crop, while being substantially smaller than the unusually large crop of 1934 and also apparently, smaller than those of 1922 and 1924, amounts to almost 1,430 million Imperial (1,720 million American) gallons. It would thus be nearly one fourth larger than the average of the five years 1929-33 and about one fifth larger than the average of the 10 years 1924-33.

The quality of wines is generally satisfactory although inferior to last year's. The alcoholic degree is lower than it was last year in the south and in most areas.

*Italy:* By taking as a basis the figure of the total production of wine grapes, the probable quantity consumed fresh and the average yield of must, which appears on the whole to be rather larger than that of last year, the production of wine may be estimated to amount to 970 or 990 (1,160 or 1,190) million gallons. This would be 45 % larger than that of last year, 15 % larger than the average of the preceding five years and 10 % above the ten-year average 1924-33.

The increase in the yield compared with last year varies in most places between 30 and 50 %. The increase is 47 % in Tuscany, 47 % in Campania and 32.2 % in the three Venetias. There was a much greater increase in Emilia (82.5 %) which takes first place this year in wine production, in Umbria (142 %), in Calabria (114.5 %) and in Sicily (102.5 %). In Apulia, on the other hand, where in 1934, 24 % of the total Italian production was obtained, the crop this year was average, being equal to that of 1934 and amounting to 16 % of the total.

The quality is generally good or fairly good but the alcoholic degree is mostly lower than that of last year.

According to the most recent estimate, the production of grapes for wine this year is 155,285,600 centals against 107,608,200 in 1934 and 135,491,700 on the average of the five years ending 1933; percentages 144.3 and 114.6

*Romania:* Half this year's wine production is considered good and the other half is average. Odobesti was the area which enjoyed the most favourable conditions this year.

*Yugoslavia:* The information from private sources suggests that this year's vintage results are rather mediocre.

The plentiful production and good quality expected in the southern areas, which however, are the least important, cannot offset the poor production and unsatisfactory quality of the northern districts which form the chief producing zone.

As a result of the poor crop, the expected production this year according to a rough private estimate, will be about 66 million Imperial (80 million American) gallons, or about 20 % less than last year's production and the average.

*Algeria:* The figure given in the table below is a provisional estimate made at the end of September, that is, when picking was still in progress in many areas. Informa-

tion received subsequently seems to indicate that this figure of 407 million Imperial (489 million American) gallons represents the maximum possible crop and probably it was not reached. The *département* of Oran has a crop varying between 198 and 220 million Imperial gallons (238 and 264 million American gallons). There is a decrease in the *département* of Oran of 25 to 30 % compared with last year, the crop varying between 141 and 154 million Imperial gallons (169 and 185 million American gallons). The *département* of Constantine obtained 33 million Imperial (40 million American) gallons. Total production of Algeria is thus between 370 and 410 million Imperial gallons (450 and 490 million American gallons).

*French Morocco:* Gathering of grapes was finished by the beginning of October in the latest areas. Fermentation was nearly completed by the end of the month. Yields are very uneven. On the whole, after account is taken of new vines now producing, production is estimated to be about 15 % smaller than that of last year. In some districts, alcoholic degree is also lower than that of last year while acidity is higher.

*Tunisia:* The rains of October stimulated further growth which is rather unfavourable for vines and which may retard pruning. Stubble was being cleared at the end of October.

*Australia:* According to a preliminary estimate, wine production in South Australia in 1934-35 was 13,200,000 Imperial gallons (15,800,000 American gallons), that is, about 32 % of last year's production and about 19 % over the average of the five years ending 1932-33.

The total area of vineyards was 53,900 acres, of which 51,200 acres were bearing; the increase over last year's figure was insignificant, 1,130 acres of new-planted vines being counterbalanced by 650 acres grubbed or dried out, 33,150 acres were used for wine making, that is, about 2 % more than last year.

Total production of grapes amounted to 147,700 short tons, of which 70,800 short tons for wine making, 76,200 short tons for drying and 650 short tons of table grapes. The yield of vines for wine is about 11 % more than last year; the yield of vines for drying purposes is only 11 % greater.

## OLIVES

*Italy:* The growth of olives continued good during the first two weeks of October but some loss was caused by shedding and olive fly. It is confirmed that production is somewhat poor in North and Central Italy and good or mediocre in South Italy and the islands.

*Argentina:* Flowering of olives trees was good. The production of olives is expected to be larger than that of last year.

*Palestine:* The picking of olives has been general throughout October. It is nearly completed in the South. In the North it was partly delayed until the commencement of the rains. The crop is generally poor, but berries are large and well filled.

*Algeria:* The moisture provided by the rains of the second half of October resulted in the further growth of olives. Olive fly caused some damage but the latter was of limited extent at the beginning of November.

*French Morocco:* Gathering is earlier and began in October in the Marrakesh area. The yield in this area is mediocre. It will be nil in Mogador. In the north, on the other hand, (Meknes, Fez, Uezan), a satisfactory crop is anticipated. These two areas are about equal in importance as olive producers.

*Tunisia:* In the south – Susa and Sfax – the growth of olives continues good, but, owing to the dryness, fruit ripened too soon for complete development; consequently, a decrease in production, particularly in the case of table and pickling olives, is anticipated. Production of oil is still above the average in the Sfax area but it will be smaller in the Susa district, which is the most important producing area in Tunisia. In the central areas of Tunis and Kef condition was satisfactory at the end of October and the crop is good. In the north (Bizerta region) picking of table olives is proceeding and olives for oil are ripening in good conditions. In spite of a shedding of fruit caused by *dacus oleae*, the crop appears to be average.

The information, on the whole, indicates a fairly appreciable decrease in Tunisian production from the estimates of September-October. It suggests that production will hardly exceed the average and may not reach it.

## COTTON

*U. S. S. R.:* According to the Soviet Press, this year's cotton production will be larger than that of any preceding year. The expected production, according to the Plan, is 34,200,000 centals of unginned cotton.

The situation in the various cotton growing areas in the first half of November was as follows. In Uzbekistan, the most important cotton area of the U. S. S. R.,

### Cotton.

COUNTRIES	AREA						PRODUCTION OF GINNED COTTON								
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	% 1935/36			
				1934/ 1935	Average 1935							1934/ 1935	Average 1935		
														1934/ 1935	Average 1935
1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb.			= 100	= 100			
Bulgaria . . . . .	89	48	22	185.7	400.8	186	85	28	39	18	6	218.3	666.8		
Greece 1) . . . . .	2) 133	91	54	146.2	246.9	2) 297	173	95	2) 62	36	20	172.0	314.6		
U. S. S. R. . . . .	4,821	4,787	4,447	100.7	108.4	10,730	7,996	8,116	2,245	1,673	6,698	134.2	132.2		
Brazil: North States . . . . .	...	1,729	1,366	...	...	5,192	3,572	1,971	1,086	747	412	145.4	263.4		
United States 5) . . . . .	28,652	26,987	38,024	106.2	75.4	53,254	46,060	68,737	11,141	9,636	14,380	115.6	77.5		
Mexico . . . . .	569	418	364	136.1	156.5	4) 996	1,066	952	4) 208	223	199	93.4	104.6		
China . . . . .	4) 5,498	6,828	5,484	80.5	100.3	12,790	14,930	10,842	2,676	3,123	2,268	85.7	118.0		
Chosen . . . . .	514	474	445	108.3	115.5	832	650	636	174	136	133	128.1	130.9		
India 6) . . . . .	22,118	20,390	19,844	108.5	111.5	—	—	—	—	—	—	—	—		
Turkey . . . . .	...	486	432	...	...	2) 970	775	406	2) 203	162	85	125.2	239.0		
Egypt . . . . .	1,733	1,798	1,766	96.4	98.1	*) 8,365	7,483	7,269	*) 1,750	1,566	1,521	111.8	115.1		
Eritrea . . . . .	3	13	7	26.9	46.1	3	6	5	1	1	1	47.8	50.9		

1) Area sown. — 2) Unofficial estimate — 3) Estimate of the Plan. — 4) First estimate. — 5) See Summary of Government's Cotton Reports. — 6) Second estimate

the Plan providing for cotton purchases by the Government was accomplished in full on 14 November, a month earlier than the established date 19,731,000 centals of unginned cotton had been delivered, that is, 3,902,000 centals more than the total amount delivered last year. 90 % of the cotton delivered is first grade. In Uzbekistan the average yield was 25 % larger than the 535 lbs. per acre obtained last year. In Turkmenistan, the Plan of deliveries to the Government had been carried out in full on 4 November, or more than a month before the given date, 80 % of the unginned cotton is of first grade quality. The amount delivered to the State is 397,000 centals greater than it was a year ago and no less than 441,000 centals remained in the fields. There was an increase of 28 % in the yield per acre.

In Georgia the Plan providing for deliveries was completed on 2 November. The quality of the cotton is good and picking continues.

In Armenia deliveries were finished on 7 November. 96 % of the cotton delivered is of good quality. The yield of unginned cotton per acre is 794 centals compared with 696 centals.

In Tajikistan and Kara-Kalpakia the deliveries had passed the figures in the Plan by 107 % and 3.7 % respectively on 10 November but in Kirghiz the quantity delivered was only 78.1 % and in Azerbaijan 65.8 % of the Plan.

To sum up, all the irrigated cotton growing areas had made 94.3 % of their required deliveries to the Government by 10 November.

In the new cotton growing regions, with the exception of the Azov-Black Sea region, where 95.6 % of the Plan of deliveries had been realized, picking was proceeding rather slowly with the result that the total deliveries of the new cotton growing regions amounted to only 65.6 % of the Plan.

For the country as a whole 92.5 % of the deliveries stipulated in the Plan had been made.

The good results of this year's harvest are to be attributed not only to the generally favourable weather conditions, which were better than those of last year, but also to the improved organization. The available information indicates that preparations of the land for sowing in the irrigated regions was made much more carefully this year, further, sowings were made 10 to 15 days earlier than last year. The fields were hoed more frequently and a larger area was irrigated. The area manured in 1935 was 1,384,000 acres compared with 1,077,000 acres in 1934 and 120,000 acres in 1932.

*Argentina:* The first cotton sowings in the Province of Corrientes germinated well. At the end of October, preparatory work for the coming sowings was going forward rapidly. In Salta, Santa Fé, Tucuman and in the National Territory of Misiones, the area is expected to be larger than last year as a result of governmental encouragement. In the Chaco the crop suffered to some extent from the lack of moisture. The rains which fell in the Province of Santiago del Estero were helpful to the crop.

*United States:* The week ended 23 October was abnormally warm. There was considerable precipitation in the northern portion of the cotton belt, but practically no rain fell in the more eastern districts. Picking and ginning made good progress in the eastern half of the belt, but only fair progress in some north-western sections. During the last week of October, weather continued in the eastern part of the belt, and the crop was about two-thirds gathered as far as North Carolina. In the north-western part of the belt the week was generally unfavourable because of frequent rains. In Texas the heavy rains in the north retarded picking and injured cotton that was open, but the crop was largely gathered except in the north-west, where considerable cotton was still out. In Oklahoma picking was almost at a standstill and very

*Summary of Government's Cotton Reports, by cotton seasons:*

	Provisional estimates for dates indicated 1935/36	Final estimates		Percent. 1935/36	
		1934/35	Average 1929/30 to 1933/34	1934/35 = 100	Aver. = 100
<i>Report referred to 1 July:</i>					
Area in cultivation (acres) . . . . .	29,166,000	27,883,000	40,860,000	104.6	71.4
<i>Report referred to 1 August:</i>					
Area left for harvest (acres) . . . . .	(1) 28,480,000	(2) 26,987,000	(3) 38,024,000	105.5	74.9
Crop condition (per cent. of normal) . . . .	73.6	60.4	(4) 68.7	—	—
Production (5) . . . . .	11,798,000	9,636,000	14,380,000	122.4	82.0
Yield of lint per acre, in lb. . . . .	198.3	170.9	(4) 177.1	116.0	112.0
Cotton ginned to 1 August (6) . . . . .	94,241	99,787	82,957	94.4	113.6
Cotton ginned to 16 August (6) . . . . .	316,930	354,724	335,834	89.3	94.4
<i>Report referred to 1 September:</i>					
Area left for harvest (acres) . . . . .	(7) 28,652,000	(2) 26,987,000	(3) 38,024,000	106.2	75.4
Crop condition (per cent. of normal) . . . .	64.5	53.8	(4) 59.2	—	—
Production (5) . . . . .	11,489,000	9,636,000	14,380,000	119.2	79.9
Yield of lint per acre, in lb. . . . .	192.0	170.9	(4) 177.1	112.3	108.4
Cotton ginned to 1 September (6) . . . . .	1,133,000	1,402,835	1,255,081	80.7	90.3
Cotton ginned to 16 September (6) . . . . .	2,318,000	3,129,794	2,985,637	74.1	77.7
<i>Report referred to 1 October:</i>					
Crop condition (per cent. of normal) . . . .	64.0	55.9	(4) 57.9	—	—
Production (5) . . . . .	11,464,000	9,636,000	14,380,000	119.0	79.7
Yield of lint per acre, in lb. . . . .	191.5	170.9	(4) 177.1	112.0	108.1
Cotton ginned to 1 October (6) . . . . .	4,230,000	4,962,384	5,672,176	85.2	74.6
Cotton ginned to 18 October (6) . . . . .	6,590,000	6,743,904	8,752,764	97.7	75.3
<i>Report referred to 1 November:</i>					
Production (5) . . . . .	11,141,000	9,636,000	14,380,000	115.6	77.5
Yield of lint per acre, in lb. . . . .	186.1	170.9	(4) 177.1	108.9	105.1
Cotton ginned to 1 November (6) . . . . .	7,750,000	7,917,671	10,696,441	97.9	72.4
Cotton ginned to 14 November (6) . . . . .	8,437,000	8,634,632	11,968,466	97.7	70.5

(1) Area in cultivation on 1 July, less the ten-year, 1925-34, average abandonment, about 2.4 per cent. — (2) Area actually harvested; per cent. of abandonment about 32. — (3) Area actually harvested; the per cent. of abandonment, about 1.7, does not take into account about 10 ½ million acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts. — (4) Ten-year, 1924-33, average. — (5) In bales of 478 lb. net weight and exclusive of linters — (6) In running bales, counting round bales as half-bales and exclusive of linters. — (7) Area in cultivation on 1 July, less 1.8 per cent. of abandonment.

little ginning was accomplished. Bolls were opening slowly and much cotton was still in the fields.

The production forecast of 1 November, was about 3 per cent. below the 1 October forecast. Most of the decline during October took place in Arkansas, Oklahoma, Tennessee and Missouri, where early frosts occurred. Often, too, unfavourable weather conditions checked the development of the late crop. Moderate declines during the month were shown in North Carolina, Mississippi, Louisiana and Texas.

During the first week of November, there was considerable rain in the north-western part of the belt, but apart from this the weather in the past week was favourable for outside operations and the harvesting of the cotton crop made good progress. In Texas picking was about completed, except in the west and central districts, where progress was slow. In Oklahoma rains were unfavourable; slow progress was made with picking and much cotton was still out. Bolls were opening slowly, but it was expected that frost at the close of the week would probably hasten the opening of the bolls.



During the week ended 13 November, continuous rains in the northern parts of Texas, Arkansas and Oklahoma were unfavourable for the picking of the crop and more or less lint damage was reported

During the week ended 20 November, cloudy and rainy weather made conditions decidedly unfavourable for picking in the north-western portion of the belt. The Texas crop is largely gathered, except in the extreme north-west. In Oklahoma much remains in the fields, one-third to half of the crop being unpicked, except in the southeast. Very little picking was accomplished, while some unopened bolls have deteriorated.

*St. Vincent:* Owing to a petition of certain planters to be allowed to sow on 1 August, the date of the expiration of the close season has been changed from 31 August to 15 August. The difficulty seems to be that in certain districts the supply of labour is not adequate to plant the desired area during the month of September and sowing in October has been found to give poor results. It is feared, however, that too great an advance in the sowing date may lead to an increase in boll diseases and may necessitate picking in wet weather.

During the quarter ended 30 September 1935, weather conditions were favourable for crops and a considerably larger area was planted this year: it is estimated that over 3,000 acres are under cotton, as compared with 1,464 last year and 2,103 on the average of the preceding five years. Percentages. 205.1 and 142.7.

Germination was very good and subsequent growth was rapid and satisfactory, though in a few localities plants suffered from mole crickets and wilt disease. The majority of growers applied sulphate of ammonium when the plants were four to six weeks old, soon after thinning.

*India:* In the Central Provinces during October and the first decade of November weather was clear and warm, except for slight scattered showers. Cotton picking had commenced and was going on. In Bombay weather was dry until the middle of the month, but after this date good or moderate rains were experienced. Crop condition was satisfactory except in parts of the Deccan where the cotton crop was spoiled by rain.

In Madras rain was moderate in the first and last decades of October, while in the second decade heavy rains were experienced in the Carnatic and on the west coast. Crop condition was generally fair

In the Punjab dry weather was prevalent in October, only slight rains having fallen in the second week of the month and at the beginning of November. Crop condition was average in general, but some damage from tela in Lahore and Shahpur, from boll worm in Lyallpur and from root in Shahpur was reported.

According to a cable dated 11 November, cotton picking was in progress in the Punjab and crop condition was 93 % of the normal compared with 95 % in the previous month and 83 % last year.

*Egypt:* Cotton ginned up to the end of September, in bales of 478 lb. net weight:

Varieties	1935	1934	1933	1932	1931	1930	1929
Sakellaridis . . . . .	3,840	8,070	1,080	5,730	4,230	8,430	14,320
Other varieties above:							
1 <sup>3</sup> / <sub>8</sub> " . . . . .	20,820	22,710	3,200	4,570	71,440	146,650	156,450
1 <sup>1</sup> / <sub>2</sub> " . . . . .	2,500	2,880	1,090	3,130			
1 <sup>1</sup> / <sub>8</sub> " . . . . .	179,340	197,960	128,700	73,070			
Total . . . . .	206,500	231,620	134,070	86,500	75,670	155,080	170,770
Scarto (linters) . . . . .	2,600	3,120	1,170	1,270	1,330	2,060	2,260

## Cotton ginned up to the end of October, in bales of 478 lb. net weight:

Varieties	1935	1934	1933	1932	1931	1930	1929
Sakellaridis . . . . .	42,140	42,240	30,870	42,920	45,630	71,050	109,770
Other varieties above:							
1 3/8" . . . . .	108,460	73,440	40,060	29,430	339,710	386,140	443,690
1 1/4" . . . . .	13,770	13,210	17,620	22,310			
1 1/8" . . . . .	507,370	449,750	418,860	203,700			
Total . . . . .	671,740	578,640	507,410	298,360	385,740	457,190	553,460
Scarto (linters) . . . . .	11,710	10,180	7,470	6,050	8,680	8,690	10,500
Total production (including Scarto) . . . . .	*) 1,710,600	1,535,600	1,776,900	1,027,000	1,317,300	1,714,900	1,767,800

\*) First estimate.

The weather conditions of October continued to be favourable to the maturation and opening of the healthy bolls remaining on the plants with generally good effect on the yield of the second picking especially in Lower Egypt. The last picking is over except in some areas most of which lie in the northern zones of the Delta.

*Uganda:* The total acreage planted to the end of September was approximately 1,140,359 acres as compared with 1,185,599 acres at the same date last year. Weather conditions during September were favourable and effected a considerable improvement in the condition of the crop, which at the end of the month was only slightly below normal.

*Anglo-Egyptian Sudan:* Sowings for the cotton season 1935-36 are well advanced and the crop is said to be good. Floods and rains in the different districts have been generally smaller and lighter than last season and even below normal in the Tokar and Gash areas. In Kordofan rain have been very much lighter than last year, but are reported to have been sufficient; according to seed issues a larger crop is expected.

*Union of South Africa:* The total number of cotton bales graded for the Union and Swaziland this season to the end of September is 2,480 as compared with 1,928 for the same period last year.

## FLAX

*U. S. S. R:* 44 % of the Plan providing for deliveries of flax to the State was accomplished by 5 November.

*Argentina:* The latest monthly report, issued on 22 October by the Department of Rural Economy and Statistics of the Ministry of Agriculture at Buenos Aires, contains the following information on the flax crops of Argentina.

*Province of Buenos Aires.* — The condition of the flax crop in the east was mediocre with a tendency to improve after the October rains. Germination was late and uneven. In western, south-eastern and central areas the crop was in good condition, though growth, owing to the low temperatures, was slow. In the north, which grows most of the crop, the recent rains effected an appreciable improvement.

*Province of Santa Fé:* Crop conditions is poor in the north. Germination was uneven and subsequent growth unsatisfactory. Grasshopper attacks caused

## Flax

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935 — 1935/36		1935	1934	Aver. 1929 to 1933	1935	1934	Aver. 1929 to 1933	% 1935 — 1935/36	
	—	—	—	—		—	—	—	—	—	—	—	
	1935/36	1934/35	1929/30 to 1933/34	1934 — 1935	Aver. — 100	1935/1936	1934/1935	1929/30 to 1933/34	1935/36	1934/35	1929/30 to 1933/34	1934 — 1935	Aver. — 100
	1,000 acres					1,000 centals			1,000 pounds				

## Fibre.

Germany 1) . . .	55	22	20	253.7	277.1	1,378	592 <sup>2)</sup>	343	137,778	59,210 <sup>2)</sup>	34,335	232.7	401.3
Austria 3) . . .	5	4	7	105.6	62.9	67	70	103	6,702	7,011	10,251	95.6	65.4
Belgium . . .	46	35	42	129.4	109.7	617	482	302	61,730	48,172	30,209	128.1	203.9
Bulgaria . . .	6	3	1	205.7	546.8	8	7	2	786	701	222	112.2	354.5
Estonia . . .	73	53	56	137.7	128.6	225	156	156	22,475	15,618	15,623	143.9	143.9
*Finland 4) . . .	12	11	9	101.4	129.4	...	37	28	...	3,664	2,799	...	...
*France . . .	56	58	54	97.2	104.8	...	323	356	...	32,334	35,596	...	...
*N. Ireland . . .	28	16	17	177.0	161.9	...	82	76	...	8,236	7,605	...	...
*Hungary . . .	8	8	—	104.0	—	27	27	—	2,674	2,666	—	100.3	—
Latvia . . .	168	114	110	146.7	152.7	587	357	335	58,662	35,671	33,510	164.5	175.1
Lithuania 4) . . .	227	150	159	151.6	143.3	792	478	514	79,184	47,794	51,360	165.7	154.2
Netherlands . . .	23	15	24	150.5	97.5	148	120	158	14,771	11,980	15,769	123.3	93.7
*Poland . . .	306	262	261	116.9	117.1	...	679	874	...	67,944	87,364	...	...
*Romania . . .	79	63	51	124.6	153.9	...	166	108	...	16,607	10,791	...	...
Czechoslovak . . .	33	23	27	141.3	122.8	153	122	112	15,272	12,246	11,237	124.7	135.9
*U. S. S. R. 5) . . .	5,115	5,214	5,276	98.1	97.0	...	11,685	10,582	...	1,168,454	1,058,222	...	...
Egypt . . .	5	5	3	92.8	155.2	29	32	21	2,932	3,192	2,069	91.8	141.7
TOTALS . . .	641	424	449	149.4	142.0	2,902	1,942	1,772	290,070	194,227	177,117	149.4	163.8

## Linseed.

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935 — 1935/36		1935	1934	Aver. 1929 to 1933	1935	1934	Aver. 1929 to 1933	% 1935 — 1935/36	
	—	—	—	—		—	—	—	—	—	—	—	
	1935/36	1934/35	1929/30 to 1933/34	1934 — 1935	Aver. — 100	1935/36	1934/35	1929/30 to 1933/34	1935/36	1934/35	1929/30 to 1933/34	1934 — 1935	Aver. — 100
1,000 acres						1,000 centals			1,000 pounds				
Germany . . .	55	22	20	253.7	277.1	355	140 <sup>2)</sup>	70	634	249 <sup>2)</sup>	125	254.4	508.6
Austria . . .	3	3	4	116.1	72.0	11	12	16	20	21	29	98.1	70.8
Belgium . . .	46	35	42	129.4	109.7	203	160	212	362	286	378	126.6	95.7
Bulgaria . . .	6	3	1	205.7	546.8	26	8	5	46	14	8	320.9	546.5
*Estonia . . .	73	53	56	137.7	128.6	...	162	176	...	290	314	...	...
*Hungary . . .	31	30	—	104.6	—	164	141	—	292	251	—	116.3	—
*Italy . . .	11	11	18	104.8	61.9	...	46	99	...	82	177	...	...
Latvia . . .	168	114	110	146.7	152.7	520	334	333	928	597	594	155.5	156.1
Lithuania 4) . . .	227	150	159	151.6	143.3	862	568	638	1,539	1,014	1,140	151.7	135.0
*Poland . . .	306	262	261	116.9	117.1	...	1,221	1,217	...	2,180	2,173	...	...
Romania . . .	79	63	51	124.6	153.9	253	205	223	452	365	398	123.8	113.8
Czechoslovakia . . .	33	23	27	141.3	122.8	124	94	87	222	168	155	132.3	142.6
*U. S. S. R. 6) . . .	5,744	5,814	6,576	98.8	87.3	...	15,432	16,811	...	27,558	30,021	...	...
Canada . . .	215	227	463	94.8	46.4	802	510	1,450	1,433	910	2,589	157.4	55.3
United States . . .	2,138	969	2,500	220.6	85.5	7,952	2,919	7,573	14,200	5,213	13,523	272.4	105.0
India . . .	3,381	3,261	3,096	103.7	109.2	9,363	8,422	8,534	16,720	15,040	15,240	111.2	109.7
Egypt . . .	5	5	3	92.8	155.2	35	42	22	62	74	40	84.1	156.7
Eritrea . . .	2	6 <sup>8)</sup>	3	40.8	81.1	13	24 <sup>8)</sup>	19	24	43 <sup>8)</sup>	34	54.5	70.4
*Argentina . . .	( <sup>9)</sup> 6,128	( <sup>9)</sup> 8,103	( <sup>9)</sup> 7,499	75.6	81.7	...	44,644	38,306	...	79,721	68,404	...	...
Uruguay . . .	415	401	370	103.6	112.2	...	2,658	1,958	...	4,747	3,496	...	...
TOTALS . . .	6,358	4,881	6,479	130.1	98.1	20,519	13,438	19,182	36,642	23,994	34,253	152.7	107.0

\* Countries not included in the totals. — †) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) Production expressed in dry stalks (flax and straw). The corresponding figures in flax included in the totals are as follows: 1935 — 27,556,000 lb.; 1934 — 11,842,000 lb.; average — 6,867,000 lb. — 2) Year 1933. — 3) Production expressed in terms of air-dried stalks. — 4) Flax and hemp. — 5) "Dolguetz" variety. — 6) Total area (including that for flax). — 7) Total area, according to the Plan. — 8) Average 1931 to 1933 — 9) Area sown. — 10) Area harvested.

some loss. The situation is better towards the central and southern parts of the province where the crop is growing more evenly though it is backward. However, even after the recent rains, prospects were still below normal.

Province of Córdoba. The early sowings in the north cover a smaller area and show uneven germination and growth. The later sowings, which occupy the greater part of the flax area, are in good conditions and growing vigorously. The October rains were of benefit to the crops and prospects for the Province as a whole were good.

Province of Entre Ríos. The first sowings were flowering, the intermediate were still growing, and the latest, which were put in the ground after the rains, germinated well.

Province of Santiago del Estero: The crop was backward and the rains were insufficient. There was noticeable drought damage in some *départements*.

In the National Territory of the Pampa the crop was late and had undergone frost damage.

*Argentina* (Telegram of 23 November): Owing to the weather conditions which have prevailed since the last report, issued on 22 October, the flax crop is still backward for the time of year.

## HEMP

*Italy*: The unfavourable conditions which prevailed in some areas during the first half of October retarded the handling of hemp and caused some deterioration in quality.

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Average				1934	Average
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	

### Fibre.

Germany 1) . . . . .	9	1	1	983.6	1,034.5	—	—	—	—	—
Austria 2) . . . . .	1	1	1	120.7	97.8	1,345	1,367	1,607	98.4	83.7
Bulgaria . . . . .	16	14	10	119.6	160.3	7,495	5,872	3,574	127.6	209.7
Italy . . . . .	165	156	166	106.0	99.8	...	133,325	153,796	...	...
Poland . . . . .	85	80	79	106.0	107.3	...	22,935	34,515	...	...
Romania . . . . .	114	113	106	100.7	107.1	...	34,294	50,913	...	...
Czechoslovakia . . . . .	18	18	20	100.4	90.8	10,553	13,244	11,335	79.7	93.1
U. S. S. R. . . . .	1,433	1,478	2,096	97.0	68.4	...	310,191	502,215	...	...

### Hempseed.

Austria . . . . .	3)	3)	3)	142.9	74.6	1	1	125.0	76.0
Bulgaria . . . . .	16	14	10	119.6	160.3	5,325	4,282	124.4	194.3
Poland . . . . .	85	80	79	106.0	107.3	...	37,040	43,160	...
Romania . . . . .	114	113	106	100.7	107.1	...	41,870	35,193	...
Czechoslovakia . . . . .	18	18	20	100.4	90.8	5,538	8,978	7,869	61.7
U.S.S.R. . . . .	1,433	1,478	2,096	97.0	68.4	...	499,790	731,937	...

1) Hemp and other textile plants. — 2) Production expressed in terms of air-dried stalks. — 3) Area less than 500 acres.

## HOPS

*France:* According to private information, the crop, although the area is about the same, is about 20 % smaller than that of last year. Quality, however, is excellent. 60 % of the crop may be described as very good.

*Hops.*

* COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver- age				1934	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
Germany . . . . .	25	24	28	106.7	91.8	...	14,427	19,500	...	...
Belgium . . . . .	2	2	2	98.2	100.1	3,748	2,824	2,318	132.7	161.7
Engl. and Wales . .	18	18	19	101.2	94.1	27,810	29,008	26,544	95.9	104.8
Poland . . . . .	8	7	6	108.8	138.8	...	3,172	3,273	...	...
Czechoslovakia . .	29	29	33	100.1	88.7	15,432	15,595	23,219	99.0	66.5
United States . . .	39	37	24	106.0	165.8	41,200	41,195	29,415	100.0	140.1

1) Average 1929, 1932 and 1933.

*Great Britain and Northern Ireland:* The total acreage under hops (see Table) was slightly larger than that of the previous year. The average yield per acre over the whole of the hop growing areas is estimated to be 1,520 lb. per acre compared with 1,610 lb. per acre in 1934 and an average of 1,380 lb. per acre for the previous ten years.

The weather conditions were on the whole favourable to the crop, which appears to be free from disease, while the quality of the crop is reported to be generally good. The September gales, however, caused some damage to the crop and later pickings were inclined to be discoloured. The area left unpicked was estimated to be 632 acres as compared with 273 acres in 1934. This increase was due in some measure to the inclement weather experienced during the picking season.

## TOBACCO

*Yugoslavia:* The tendency to expand the tobacco area, which was interrupted last year as a result of the crisis in markets and prices, was resumed this year and production is large.

Moreover, had there been no drought, the outturn would have been still larger. According to a rough private estimate, the tobacco crop amounts to 24 million lb. as compared with 13 millions lb. last year.

*Argentina:* Preparation of beds and the work of transplanting proceeded in good conditions except in the Chaco where there were complaints of drought.

*Palestine:* The picking of tobacco was concluded during October. Drying, curing and baling is now in progress.

*Eritrea:* According to the most recent estimate, production of tobacco this year is about 154,300 pounds against 77,200 in 1934 and 50,900 on the average of the five years ending 1933; percentages, 200.0 and 303.0.

## Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver- age				1934	Aver- age
1,000 acres					1,000 pounds					
*Germany 1).	31	30	26	103.8	122.2	...	76,897	55,110	...	...
Belgium	8	8	7	106.8	117.1	15,873	16,263	14,531	97.6	109.2
Bulgaria	86	55	75	155.4	114.3	60,684	46,685	58,643	130.0	103.5
Greece	200	181	209	110.7	95.8	92,509	92,109	115,503	100.4	80.1
Hungary	41	41	56	101.5	73.2	41,486	40,040	72,247	103.6	57.4
*Romania	44	25	50	180.4	88.7	...	13,020	32,942	...	...
Czechoslovakia	24	25	21	94.7	112.7	27,812	30,165	28,180	92.2	98.7
Yugoslavia	...	18	41	...	...	24,251	13,336	29,555	181.8	82.1
United States	1,502	1,271	1,848	118.2	81.3	1,300,000	1,045,660	1,431,450	124.3	90.8
Japan	87	85	87	102.3	99.5	149,055	148,989	143,854	100.0	103.6
Turkey	136	116	128	117.4	106.0	74,186	78,650	82,997	94.3	89.4
Algeria	53	57	54	93.5	98.9	38,581	49,007	39,532	78.7	97.6
TOTALS	2,155	1,857	2,526	116.6	85.3	1,824,437	1,560,904	2,016,492	116.9	90.5

\*) Countries not included in the totals. — 1) Production for sale. — 2) Unofficial data.

## OTHER PRODUCTS

## Cacao.

*Brazil:* According to the Instituto de Cacao de Bahia, great difficulties continued to be caused in the first half of October by the scarcity of transport, in connection with the conditions of the bar at the port of Ilheus. Arrivals for September were 28 million lb. as compared with 32 for the same month in 1934 (88 %). However, these arrivals include those at Ilheus, from whence it was impossible to move about 13 million lb. owing to the obstruction of the bar. Shipments for September were 27 million lb. It was reported that the quality of the cacao was improving thanks to the favourable weather that had lately been experienced.

*Surinam:* The condition of cacao failed to improve during the second quarter of 1935 as in the first and the area previously occupied by the cacao trees is now being devoted to rice and orange trees.

*Gold Coast and British Togoland:* Major crop — By the end of September it was estimated that the crop, although showing considerable variations over small areas, would be less than last year, the estimate of 526 million lb. remaining unchanged.

*Ashanti.* — A crop below last year's but above normal was forecast; 65 % was expected to be ripe by the end of October. Movement was small.

*Western Province.* — Unfavourable weather delayed harvesting, but it was estimated that heavy yields would be obtained should conditions improve. 70 % of the crop was expected to be ripe by the end of October. Marketing was negligible.

*Central Province.* — Wet weather delayed harvesting and increased the incidence of pod disease. Rains in the Winneba area were reported to have induced a fresh flush of flowers which would prolong the season. Very little cacao was marketed.

**Eastern Province.** — Rainy weather delayed picking and rendered drying very difficult. The proportion of the crop which was expected to be ripe by the end of October was 50 % in the Nsawam Kibi area and 40 % in the Koforidua area.

**British Togoland.** — Picking was adversely affected by heavy storms. It was estimated that the crop would be below last year's in the South but above it in the North (Jasikan area) where many farms were coming into bearing.

**Total crop.** — In September the average size of the beans inspected was 126.4 per 14 cubic feet or 103.2 per 4 ounces, while measured in millimetres the average was  $23.0 \times 12.3 \times 7.0$ .

**Movement.** — Generally unfavourable weather conditions throughout all areas retarded crop movement. Some million lb. had been marketed by the end of September, the bulk of this originating from the Eastern Province. Movement statistics are as follows:

	Sept. 1935	Oct. 1934 to Sept. 1935 (million pounds)	Sept. 1934	Oct. 1933 to Sept. 1934
Railway off loadings, Takoradi . . . . .	11	206	2	185
Exports:				
Takoradi . . . . .	8	187	1	193
Accra . . . . .	11	238	2	205
All ports . . . . .	21	541	5	495

As it may be seen, maritime exports for the exports year October 1934 to September 1935 neared the record figure for the year 1932-33, which was 561 million lb.

Exports from British Togoland have shown a considerable advance this year, having risen from 22 million lb. in 1933-34 to 32 in 1934-35.

**Stocks.** — Stocks in the country in merchants' hands at 1 October were approximately 74 million lb. of which about 64 were the unexported remainder of the 1934-35 main crop. Practically all the minor crop has been exported and stocks were negligible. About 38 million lb. of new crop were estimated as being in farmer's hands at 30 September.

1934-35. **Major Crop.** — [The 1934-35 major crop exported was 537 million lb. (figure obtained by deducting the 1934 minor crop carry-over, and the 1935 minor crop exported, from the total maritime and overland exports). The stocks of the 1934-35 major crop being, as previously stated, 64 million lb., the total 1934-35 major crop may be estimated at 601 million lb. (actual production).

## Tea.

**India:** During September, conditions in North India were generally favourable for growth, and prospects were fair to good, statistics to the end of September recorded a decrease of 12,451,000 lb. as compared with the outturn to the same date last year.

In South India, heavy monsoon weather was experienced and prospects were moderate, the outturn to the end of September was 14 % behind that to the same date last year.

## Coffee.

**Brazil:** According to the figures of the National Coffee Department, the quantity of coffee destroyed up to 30 September 1935 amounted to 46,635,000 centals, of which approximately 188,000 centals were destroyed in September.

**Surinam:** Weather during the second quarter of 1935 was not favourable to the coffee crop. The losses caused by phloemic necrosis were not more than normal.

*Kenya:* The area under coffee is estimated at 103,445 acres, as compared with 102,724 acres for the preceding season and an average of 98,800 acres in the five years 1929-30 to 1933-34; percentages, 100.7 and 104.7. The yield is estimated at 271,456 centals, against 249,778 centals in 1934-35 and an average of 286,265 centals: percentage 108.7 and 94.8.

In the more important areas the prospects have been influenced by poor rainfall, and a proportion of the crop will be light.

The quantity for export available during the season beginning 1 July 1935 and ending 30 June 1936 should amount to about 269,000 centals. Though a fair proportion is likely to be light and inferior in quality, the quality on the whole is likely to show an improvement over the preceding year.

### Groundnuts.

*Argentina:* Area sown to groundnuts in 1934-35 is estimated at 197,900 acres, against 221,400 in 1933-34 and 142,200 acres on the average of the five years ending 1932-33; percentages 89.4 and 139.2.

Figures for production are: 2,045,000 centals, against 2,291,000 in 1933-34 and 1,396,000 on the average; percentages: 89.3 and 146.5.

*United States:* According to the most recent estimate, the area cultivated and gathered this year is about 1,692,000 acres against 1,571,000 in 1934 and 1,373,000 on the average of the five years ending 1933, percentages: 107.7 and 123.3. The corresponding production is estimated at about 1,280 million lb. against 1,063 million lb. and 949 million lb. percentages: 120.4 and 134.9.

*Java and Madura.* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning groundnut area:—

	1935 acres	1934 acres
Area harvested in September . . . . .	49,900	46,700
Area harvested from 1 January to 30 September .	359,300	371,000
Area of standing crop at end of September . .	129,500	152,000

*Egypt:* Harvesting of groundnuts has been in progress in the early cultivations since the beginning of the month. Maturation is being completed in other areas. The crop is satisfactory.

### Colza and sesam.

*Austria:* Crop condition of colza was fairly satisfactory on 1 November.

*Poland:* According to the most recent estimate, the area cultivated to colza this year was about 134,700 acres against 96,300 in 1934 and 77,100 on the average of the five years ending 1933; percentages, 139.8 and 174.7.

Crop condition of winter colza on 15 October was 3.7 against 3.8 on at the same date in 1934.

*Romania:* Owing to the drought, the area intended for winter colza this year is smaller. Crop condition in the middle of November was below average.

*Mexico:* Weather conditions were favourable for sesamum sowings and the area intended for the crop this year is expected to be larger than it was last year.



*Japan:* According to the most recent estimate, production of colza this year is about 2,676,000 centals (5,352,000 bushels) against 2,382,000 (4,765,000) in 1934 and 1,803,000 (3,606,000) on the average of the five years ending 1933; percentages 112.3 and 148.4.

## WORLD COCOON PRODUCTION.

On the basis of the statistical and other information communicated to the International Institute of Agriculture the main features of the world cocoon season may be traced as follows.

In Japan the total quantity of eggs placed in incubation this year was 6.5 % less than that in 1934 and 13.6 % below the average; this reduction was, apart from the effects of market conditions, very probably stimulated by the fear of a scarcity of leaves entertained by the rearers at the beginning of the spring season or in early August, periods at which the weather was distinctly adverse to mul-

### *Sericiculture.*

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver. age				1934	Aver- age
	1,000 ounces			= 100	= 100	1,000 pounds			= 100	= 100
Bulgaria . . . . .	24	28	33	87.5	73.4	2,646	3,053	3,713	86.7	71.3
France . . . . .	13	18	27	73.5	48.2	1,435	2,150	3,214	66.7	44.6
Italy . . . . .	...	418	708	...	...	39,242	63,619	94,035	61.7	41.7
Chosen . . . . . (s)	215	227	218	94.8	98.6	31,527	33,566	28,145	93.9	112.0
Japan . . . . . (s)	136	132	120	102.7	113.6	16,204	16,647	12,085	97.3	134.1
Japan . . . . . (s)	2,448	2,732	2,784	89.6	87.9	365,513	400,062	422,918	91.4	86.4
Japan . . . . . (t)	2,861	2,944	3,363	97.2	85.1	289,705	320,851	397,772	90.3	72.8
TOTALS . . . .	—	—	—	—	—	746,272	839,948	961,882	88.8	77.6

s) Spring cocoons. — f) Summer-autumn cocoons.

berries. The subsequent weather was not very good and the yield obtained proved smaller than the 133.8 pounds of cocoons per ounce of eggs incubated in the 1929-33 period and the 126.9 pounds obtained in 1934, reaching this year only 123.4 pounds.

In Italy also the season was distinctly unfavourable. In early May the demand for eggs was everywhere appreciably smaller than in 1934 and throughout that month and part of June bad weather delayed development of the leaves and generally caused difficulties so that producers preferred to abandon part of their rearings; subsequently, toward the middle of June, the weather improved and the season ended in fairly good conditions. The situation had, however, been prejudiced and cocoon production was in fact very low, being little more than 40 % of the 1929-33 average. The quantity of eggs incubated

has not been officially published and it is therefore not possible to calculate the yield of the present season; in all probability, however, it is below the average, which was 125.7 pounds of cocoons per ounce of eggs. Official information on the season's results in China and the U. S. S. R. is not available but it is learnt from other sources that in the former country the first rearings have this year been distinctly below normal and below those of 1934; it does not appear that the weather has been on the whole unfavourable in China but rearers have been confronted with the difficulties of low prices on the international market and have been constrained to restrict production. In the Soviet Union the quantities fixed to satisfy the requirements of the national silk industry and of export seem to have been considerably surpassed, especially in the Caucasus and in Turkestan, where production has been abundant.

In Chosen spring rearings, which have in the last few years shown a continuous increase, underwent a slight contraction though in compensation yields have been somewhat above normal; on the other hand, summer autumn rearings have this year been extended, with results slightly above average.

The position in the countries of smaller production may be summarized as follows.

In Bulgaria the weather favoured rearings but the quantity of eggs incubated and the production of cocoons were smaller than in preceding years; the season's yields have been normal. In France there has been only an accentuation of the already bad situation in which the industry has been for many years owing to the domination of the national market by Chinese and Japanese silks; this situation has diminished the interest of French rearers, whose members have fallen from 69,596 in 1925 to 11,758 in 1935; this year, too, incubations and cocoon production have been less than half the 1929-33 average. In Greece the season has been on the whole good; the caterpillars, which were free from disease, had plenty of good food; official data are not available but the quantity of eggs incubated appears have been larger than in 1934, while cocoon production is estimated at from 4.2 to 4.4 million pounds. According to the Sericultural Association of Levante the production of cocoons in Spain this year is about 904,000 pounds, that is, slightly larger than in 1934 but more than 30 % below the five-year average; the weather on the whole was not bad and the production of leaves, though late, was abundant. In the other European countries, including Romania, in which sericulture has a certain extension, the season was generally backward and yields were mediocre to good.

As regards Oriental countries not already mentioned, the Institute has received information from Syria and Lebanon, where conditions have on the whole been normal; incubations have, however, been smaller than last year in Lattakia though almost at the same level in the Lebanon. In the province of Gilan, the most important silk area of Iran (Persia) conditions have this year been very satisfactory and it is not improbable that the total production of cocoons will be in the neighbourhood of 4.5 million pounds. A production about equal to the Persian appears to have been obtained in Turkey, where, however, in addition to smaller rearings than in 1934 the weather was not always favourable. From the protectorates and colonies of French Indo-China, where sericulture

is especially carried on, Annam, Cochinchina and Tonkin, the available information is too fragmentary to allow of even a very rough estimate of the year's production. It is known only that in Annam and Cambodia food for the cocoons has been plentiful and that conditions have otherwise been favourable for rearings; in Tonkin, on the other hand, severe insect infestation during the summer greatly reduced the food supply.

Finally, in Brazil, where sericulture is developing rapidly, it seems that the season has been favourable and a further increase is expected in cocoon production, which last year had already attained 1,323,000 pounds against only 438,700 pounds on the average of 1925-29.

On the whole it may be calculated very roughly that world production of cocoons in 1935, not including China, the U. S. S. R. and India, is 805 million pounds, equivalent to about 510,000 bales of raw silk, against 904 million pounds in 1934 and 1,023 million in 1929-33.

The contraction already experienced except for 1933, since 1931, from the record of 1930, has thus continued, in almost all the European countries, where costs of production and difficulties in marketing constitute an almost insurmountable obstacle for rearers and dealers, the production is on the downgrade so that their total, excluding the U. S. S. R., has in the last five years fallen by over 50 %. Meantime, in practically the same period, the consumption of artificial textile fibres has undergone an impressive growth in many countries and especially in Italy and France; taking that of 1931 as 100, Italy's consumption in 1934 was about 210 and that of France almost 190. World consumption of artificial textile fibres, which, according to reliable sources, was 419 million pounds in 1931 rose to 745 million in 1934, an increase of more than 75 %.

M. COSTA.

## FODDER CROPS

*Germany.* The crop condition of clover and pasture at the beginning of November showed substantial improvement. The condition figures were 2.6 and 3.0 respectively against 3.1 and 3.2 on 1 October 1935.

According to the recent estimate, the area cultivated to maize for fodder this year is about 130,000 acres against 112,600 in 1934 and 78,000 on the average of the five years ending 1933, percentages 123.1 and 178.5

*Austria.* All fodder crops benefited from the rains of October. Production of the chief fodder crops is as follows:—

	1935 (Thousand centals)	1934 (Thousand centals)	1935 (Thousand short tons)	1934 (Thousand short tons)	% 1935 (1934 = 100)
Mangels . . . . .	48,096	56,090	2,405	2,804	85.7
Temporary meadows, clover, alfalfa (hay) . . . . .	23,691	25,896	1,185	1,205	91.5
Permanent meadows (hay) . . . . .	63,207	66,000	3,160	3,300	95.8

On 1 November crop condition of the chief fodder crops was as follows: mangels, 2.9 (against 3.0 on 1 October this year and 1.9 on 1 November 1934); red clover, 2.6 (3.1, 2.2), alfalfa, 2.8 (3.4, 2.2); mixed clovers, 2.6 (3.2, 2.1); permanent meadows 2.6 (3.3, 2.1); pastures, 2.8 (3.0, 2.4). The poor growth of foliage on the sugar beets signifies an appreciable loss of fodder.

*Belgium:* Mangels derived great benefit from the rains and yields were satisfactory. Frost inflicted some damage on mangels which were being lifted.

The sowings of clover and other fodder plants are strong and even. Meadows and grass are in good condition.

*Bulgaria:* The second estimate of the areas of permanent and temporary meadows and vetches are slightly smaller than the first while the figures for mangels and millet are slightly larger.

The estimates of the yield of hay from permanent and temporary meadows are slightly smaller, but there is a small increase in the anticipated production of millet.

The estimates for vetches and mangels are unchanged.

In general, the yield of fodder crops this year, notwithstanding a decline in the area cultivated, is appreciably better than the poor crop of last year and approximate to the average production of the years 1929 to 1933. Mangels and millet, however, are exceptions, an increase in areas resulting in a plentiful crop which is even larger than the average.

	1935	1934	Average 1929-1933	% 1934 = 100	% 1935 Average = 100
<i>Area (acres)</i>					
Permanent meadows . . . . .	678,000	604,200	772,000	97.7	87.8
Temporary meadows . . . . .	73,100	79,000	65,900	92.6	110.9
Vetches . . . . .	301,200	435,000	372,700	69.2	80.8
Mangels . . . . .	7,700	4,900	4,000	157.3	195.8
Fodder millet . . . . .	46,900	39,700	38,100	118.3	123.3

*Production.*

Permanent meadows (ooo centals) .	16,031	10,428	17,480	153.7	91.7
(ooo sh. tons)	802	521	874		
Temporary meadows (ooo centals) .	3,332	2,994	3,333	111.3	100.0
(ooo sh. tons)	167	150	167		
Vetches . . . . . (ooo centals) .	7,085	4,120	6,782	172.0	104.5
(ooo sh. tons)	354	206	339		
Mangels . . . . . (ooo centals) .	1,742	1,018	701	171.2	248.5
(ooo sh. tons)	87	51	35		
Fodder millet . . . . (ooo centals) .	1,499	938	1,168	159.8	128.4
(ooo sh. tons)	75	47	58		

*Estonia:* The frequent rains injured part of the fodder production and it is necessary to reduce the number of live stock.

Milk yields hitherto have not fallen off.

*Irish Free State:* Weather during October was wet, cold and stormy. The drizzling rains had an adverse effect on pastures.

*France:* The frosts experienced at the end of October damaged aftermaths and roots. Grass and pastures, however, are in fairly good conditions. The yield of fodder grain was average so far as violet clover and alfalfa are concerned. In some areas it was mediocre and of unsatisfactory quality.

*Great Britain and Northern Ireland:* October was an unusually stormy month but not unfavourable for the growth of root crops and pastures. Grass grew well during the month and is still plentiful though in some districts it is feared that the feeding value is none too good.

Lifting of the root crops was delayed. In many areas an average crop of mangels is expected but although the roots are of a fair size and of good quality the

yield will probably bulk slightly less than usual. The total production in England and Wales is estimated to be about 100,170,000 centals (5,009,000 short tons) against 106,020,000 centals (5,301,000 short tons) in 1934 and an average in the five years 1929 to 1933 of 108,080,000 centals (5,404,000 short tons); percentages, 94.5 and 92.7. Production in Scotland is estimated at about 1,098,000 centals (55,000 short tons) against 1,800,000 centals (40,000 short tons) and 549,000 centals (27,400 short tons). Percentages, 137.3 and 200.0.

In a few areas good crops of turnips and swedes have been obtained but, generally speaking, the yield will be below average. Total production is estimated at 105,620,000 centals (5,281,000 short tons) compared with 104,290,000 centals (5,215,000 short tons) last year and an average of 116,216,000 centals (5,811,000 short tons). Percentages, 101.3 and 90.9. In Scotland the anticipated production is 127,460,000 centals (6,373,000 short tons) against 101,920,000 centals (5,096,000 short tons) and 128,360,000 centals (6,418,000 short tons) percentages, 125.1 and 99.3

*Italy:* Rains helped the fodder crops during the first half of October and improved the position of fodder supplies which, at the end of September, were thought to be insufficient to meet requirements

*Poland:* The second cut of hay and the lifting of the root crops took place everywhere in favourable conditions (according to 90 % of the reporters) with the single exception of Wilno, where the second cutting occurred in unfavourable conditions owing to continuous rain (40 % of the reports).

Crop condition of clover on 15 October was 3.5 compared with 3.2 on the same date in 1934.

*Czechoslovakia*. In the following table are given the estimates of area and production of the principal fodder crops and straw

	1935	1934	Average 1929-1933	% 1935 = 100	% 1934 Average = 100
<i>Area (ooo acres).</i>					
Clovers . . . . .	1,841	1,687	1,807	100.1	97.1
Green fodder . . . . .	398	575	312	60.3	127.8
Temporary meadows . . . . .	60	75	100	91.0	60.3
Permanent meadows . . . . .	3,141	3,131	3,106	100.3	98.3
Straw of legumes and mixtures for feed . . . . .	186	144	228	120.4	81.4
Cereal straw (barley, oats, millet and buck-wheat) for feed . . . . .	3,402	3,567	3,770	97.0	92.5
Cereal straw (wheat, rye, meslin and spelt) for litter . . . . .	4,888	4,759	4,671	102.7	104.6
<i>Production.</i>					
Clovers . . . . . { (ooo centals)	62,757	40,249	69,492	155.0	90.3
(ooo sh. tons)	3,138	2,012	3,475		
Green fodder . . . . . { (ooo centals)	9,166	10,162	8,262	90.2	110.0
(ooo sh. tons)	458	508	413		
Temporary mead-ows { (ooo centals)	1,736	1,469	3,371	118.1	51.5
(ooo sh. tons)	87	73	169		
Permanent meadows { (ooo centals)	80,342	61,707	108,117	130.2	74.3
(ooo sh. tons)	4,017	3,085	5,406		
Straw of legumes and mixtures for feed { (ooo centals)	2,657	1,858	4,077	143.0	65.2
(ooo sh. tons)	133	93	204		
Cereal straw (barley and oats, for feed) { (ooo centals)	58,537	56,069	82,271	102.8	71.2
(ooo sh. tons)	2,927	2,848	4,113		
(ooo centals)	132,832	98,579	130,695	131.7	101.6
(ooosh. tons)	6,642	4,920	6,535		

With some exceptions, mangels have been lifted and the yield is good.

A scarcity of fodder is being experienced, this years crop, owing to the dryness, being very poor.

Crop condition of clover on 1 November was average.

*Argentina* (Telegram of 23 November): The fodder crops were partly lost owing to the scarcity of rain and excessive feeding. Pastures are in mediocre condition.

*Canada*: The following are revised estimates of the areas and production of the chief fodder crops with comparisons for previous years.

*Area (in thousands of acres).*

	1935	1934	Average 1929-33	% 1935 1934 = 100	Average 1935 = 100
Temporary meadows for hay and clover . . . . .	8,698	8,881	9,596	97.9	90.6
Alfalfa . . . . .	762	679	700	112.2	108.9
Maize for fodder . . . . .	481	497	386	96.8	124.7
Turnips, etc. . . . .	185	187	187	98.7	99.1

*Production (in thousands of centals).*

	1935	1934	Average 1929-33	% 1935 1934 = 100	Average 1935 = 100
Hay and clover . . . . .	281,960	223,480	287,086	126.2	98.2
Alfalfa . . . . .	39,240	26,562	33,115	147.7	118.5
Maize for fodder . . . . .	82,040	76,300	62,648	107.5	131.0
Turnips . . . . .	35,115	40,538	35,814	86.6	98.0

*Production (in thousands of short tons).*

	1935	1934	Average 1929-33	% 1935 1934 = 100	Average 1935 = 100
Hay and Clover . . . . .	14,098	11,174	14,354	126.2	98.2
Alfalfa . . . . .	1,962	1,328	1,656	147.7	118.5
Maize for fodder . . . . .	4,102	3,815	3,132	107.5	131.0
Turnips . . . . .	1,756	2,027	1,791	86.6	98.0

*Palestine*: A decided tendency to cultivate vetch as against Kersennah as a leguminous crop is noted, mainly due to the demand of this seed as part of a hay mixture. Applications for oat and vetch seed are much more numerous than last season, and in places, comparatively large areas are being put down for hay crops.

*Algeria*: Pastures recovered quickly after the recent rains. However, at the beginning of November, they were still not entirely satisfactory.

*Egypt*: Sowing of *bersim* (clover) was in full swing during the month and the early sowing (estimated at 25 % of the whole area) was terminated in Lower and Middle Egypt by the middle of October. Sowing has also started in basin lands where water has receded. Germination and growth are satisfactory.

*French Morocco*: Pastures greened after the rains of October which also raised the level of the water table and replenished the dried watercourses. Except in some central areas (Fez and Taza), grazings were still insufficiently supplied at the end of October to provide the necessary feed for animals.

## LIVESTOCK AND DERIVATIVES

### Live Stock in Latvia.

	1935	1934	1933	1932	1931	1930
	(Thousands)					
Horses . . . . .	384.9	375.2	370.2	366.0	366.3	359.0
Cattle . . . . .	1,272.2	1,157.6	1,155.8	1,153.1	1,116.9	1,026.3
of which:						
Milkcows . . . . .	874.6	807.1	802.9	784.3	745.2	728.4
Sheep . . . . .	1,345.0	1,208.9	1,114.3	984.0	923.1	872.9
Pigs . . . . .	801.8	686.4	585.9	581.6	712.1	522.7

**Pig population in Denmark.**

(Thousands)

Classification	1935							1934			
	5 Oct.	24 August	13 July	25 May	13 April	1st March	15 Jan.	1st Dec.	15 Oct.	1st Sept.	16 July
Boars for breeding . . . .	21	21	20	20	20	20	19	20	20	21	21
Sows in farrow for first time	86	75	87	83	87	89	72	48	29	40	66
Other sows in farrow . . .	178	184	188	172	154	166	181	190	187	180	165
Sows in milk . . . . .	98	90	78	88	98	81	77	74	82	78	89
Sows not yet covered (and not for slaughter) . . .	29	25	25	25	22	19	19	21	25	29	24
Sows for slaughter . . . .	14	9	11	12	12	14	9	11	10	10	10
Total of sows . . . . .	405	383	389	380	373	369	358	344	333	337	355
Sucking pigs not weaned .	860	782	670	724	813	695	668	653	720	680	776
Young and adult pigs for slaughter:											
Weaned pigs under 35 kg.	792	742	761	797	740	738	762	745	734	790	738
Pigs of 35 and under 60 kg.	683	693	729	635	629	637	667	646	711	661	648
Fat pigs of 60 kg. and over . . . . .	534	545	456	500	463	508	451	621	590	503	524
Total pigs . . . . .	3,295	3,166	3,025	3,056	3,038	2,967	2,925	3,029	3,108	2,992	3,061

**Live Stock in the Netherlands.***Numbers of Cattle according to the Enumeration of 30 May-20 June 1935 (1).*

Classification	20 May-1 June 1935	14 May-1 June 1934	June 1933	June 1932	June 1930	June 1921	June 1910
Cattle . . . . .	2,639,477	2,829,684	2,877,230	—	2,366,066	2,062,771	2,026,943
Bulls over 1 year . . . .	37,668	49,289	39,832	—	26,453	25,785	23,309
Heifers over 1 year in calf and not in calf . . . . .	532,857	673,275	611,659	—	419,417	371,436	389,339
Young bulls under 1 year .	64,628	75,920	95,651	—	502,033	496,808	401,160
Heifers under 1 year . . .	399,151	459,197	516,391	—			
Milk cows and cows that have put down their . . . . .							
1st calf . . . . .	298,882	324,632	335,348	—	—	—	—
2nd calf . . . . .	287,349	286,176	283,594	1,338,446	1,298,736	1,085,713	1,068,361
3rd calf . . . . .	278,661	263,778	258,492	—	—	—	—
more than three calves .	569,802	559,369	574,877	—	—	—	—
Calves for fattening . . .	42,258	45,865	50,909	—	38,548	19,597	47,086
Other cattle for fattening .	128,221	92,183	110,477	—	80,879	63,432	97,688

1) The figures of the enumerations of 1935, 1934, 1933 and 1932 are not strictly comparable with those of the Censuses of 1930, 1921 and 1910, the figures being collected on different bases. The enumerations of 1935, 1934 and 1932 were undertaken by the Netherlands Central Live Stock Office, that of 1932 by the Central Office for Live Stock Products during the Crisis while the censuses were conducted by the Department of Agriculture.

*Numbers of Pigs according to the Enumeration of August 1935.*

Classification	August 1935	February 1935	August 1934	May 1934	November 1933	April 1933	September-October 1932
Pig . . . . .	1,629,377	1,389,460	1,874,570	2,069,801	2,483,710	2,112,546	1) 2,735,733
Boars for reproduction . . .	5,575	5,360	6,284	6,397	8,284	8,206	10,103
Sows for reproduction . . .	152,555	145,284	145,884	157,100	239,578	234,776	264,794
Sucking pigs under 6 weeks .	397,483	269,549	295,744	453,118	437,075	543,671	534,584
Young pigs under 60 kg . . .	544,000	445,393	572,270	707,013	990,088	769,307	1,011,543
Pigs of 60 to 95 kg. . . . .	335,235	308,201	469,643	366,004	400,445	367,311	2) 624,142
Pigs over 95 kg . . . . .	194,529	215,673	384,745	380,169	408,240	189,275	3) 289,818

1) Including unspecified pigs — 2) Pigs of 60 to 100 kg — 3) Pigs over 100 kg.

*Numbers of Horses according to the Enumeration of 1935 (1).*

Classification	2nd half May 1935	2nd half May 1934	May-June 1930
<i>Horses</i> . . . . .	287,970	269,298	299,152
Over 3 years . . . . .	231,369	220,648	253,639
Under 3 years:			
born during the year . . . . .	21,002	15,834	17,081
others . . . . .	35,599	32,816	28,432

*Numbers of sheep according to the Enumeration of 1935 (1).*

Classification	2nd half May 1935	2nd half May 1934	May-June 1930
<i>Sheep</i> . . . . .	680,174	641,894	484,987
Wewes . . . . .	317,430	311,609	224,200
Lambs . . . . .	362,744	330,285	260,787

1) The figures of the enumerations of 1935 and 1934 are not strictly comparable with those of the Census of 1930 as the numbers were taken on a different basis

### Dairy production in the Netherlands.

The following table gives figures for the 1934 production of butter and cheese, compared with those for the years 1928 to 1933.

DESCRIPTION	1934	1933	1932	1931	1930	1929	1928
	thousand pounds						
Butter under State control . . . . .	181,608	176,206	175,919	174,394	178,354	176,886	171,996
Butter manufactured under special control in the margarine factories . . . . .	—	—	—	724	873	899	689
Butter not controlled (not exportable) . . . . .	17,900	17,995	11,947	11,806	13,109	13,389	15,340
Cheese under State control . . . . .	253,175	257,953	257,966	285,978	293,843	288,790	281,355
Cheese not controlled (not exportable) . . . . .	3,394	9,389	5,459	6,863	8,051	8,404	10,002

### Live Stock in the U. S. S. R.

The following are the numbers of cattle, sheep and goats, and pigs on 1 July in the last ten years and the numbers in 1916.

Year	Cattle	Sheep and goats	Pigs
1935 . . . . .	49,271,100	61,092,000	22,555,700
1934 . . . . .	42,437,100	51,948,900	17,455,700
1933 . . . . .	38,380,200	50,223,600	12,067,600
1932 . . . . .	40,650,700	52,140,500	11,611,400
1931 . . . . .	47,916,000	77,692,100	14,442,500
1930 . . . . .	52,485,800	108,758,300	13,559,000
1929 . . . . .	67,110,900	146,976,100	20,384,400
1928 . . . . .	70,543,300	146,098,500	25,989,000
1927 . . . . .	68,034,000	139,730,300	23,076,300
1916 . . . . .	60,563,300	121,201,600	20,875,400



The serious crisis in live stock raising which began in 1929, that is, when a vigorous agricultural collectivisation policy was being adopted, continued up to 1933, involving a substantial and continuous decline in live stock numbers. In 1934, the numbers began to recover and the progress continued in 1935 when the increases over 1934 amounted to 29.2 % for pigs, 17.6 % for sheep and goats, and 16.1 % for cattle.

### **Wool production in Argentina.**

According to an estimate issued by the Ministry of Agriculture of Buenos Aires, wool production for 1935-36 is 3,131,000 centals, with a reduction of 13 % compared with 1930 (3,616,000 centals), while the number of sheep fell by 14.5 % (37,956,000 head in 1935 against 44,407,000 in 1930).

Entre Ríos is the Province which shows the sharpest decline (45 %), followed by Santa Fé and Corrientes with 40 and 30 % respectively, the main causes being increased employment of the soil for agriculture, depreciation of flocks, heavy mortgages and death caused by cold, locusts and droughts.

The Province of Buenos Aires continues to supply most of the wool produced by the country, with 1,258,000 centals and the southern territories come next.

According to grades, wool production for 1935-36 is the following:

Merino 441,000 centals;  
Fine cross 882,000 centals;  
Medium crossbred 265,000;  
Coarse crossbred 1,279,000;  
Criollo 154,000.

The Ministry of Agriculture states that the wool stocks left over from last season do not exceed 110,000 centals, so that the total available this season is 3,241,000 centals not included frigorífico wool, which in the last five years has averaged 110,000 centals per annum.

### **Current information on live stock and derivatives.**

*Belgium:* Animals benefited by the good state of pastures. Their state of health was good.

*Irish Free State:* The supply of fodder and concentrated foods is adequate for all normal requirements.

Milk yields are up to average.

*Great Britain and Northern Ireland:* Milk yields were about average for the time of year except in some districts in Scotland where adverse weather conditions reduced yields.

*Hungary:* Fodder supplies are considered to be none too plentiful, but if the winter is normal and subsidiary fodder is utilized, they may be sufficient for live stock feeding, as pastures were still being used in the middle of November.

The condition of animals is generally satisfactory.

*Netherlands:* Feeding conditions of dairy cows were generally normal. Supplies of fodder are adequate but their quality is average.

Compared with last year milk production hardly differed from the normal in Friesland, Drenthe, Overijssel, South and North Holland and North Brabant. Milk yields increased by 2.5 to 5 % in Groningen, but in other provinces they fell by nearly 5 %.

*Argentina* (Telegram of 23 November): Health of animals continues to be good.

*United States:* Information available at the beginning of October pointed to a material increase in the number of cattle to be fed for market during the late autumn and winter feeding period this year over the small numbers fed a year earlier. It appears that the increase in feeding will be general both in the Corn Belt and in other areas where cattle are finished for market in considerable numbers. With supplies of feed large and prices low in nearly all States, and with feed grain production much larger than last year and hog numbers greatly reduced, there is a widespread tendency to turn to cattle feeding to utilize available feed.

The number of lambs to be fed for market during the 1935-36 feeding season is expected to be substantially smaller this season than last and will probably be the smallest for at least 6 years. While the total number in the Corn Belt States will be smaller this season than last, it is probable that some of the States where the 1934 drought was most severe will feed more lambs than they did last season.

*Palestine:* Domestic stock are now grazing on the hills, both these and draught animals are in good condition. Hand feeding is being resorted to where hillside grazing is insufficient, abundant supplies of *tibu* (dry hay), being available.

*Algeria:* The health of animals at the end of October was satisfactory.

*French Morocco:* Animals were still in fairly satisfactory condition at the end of October but feeding conditions, owing to the condition of pastures, were mediocre.

*Union of South Africa:* In September stock were generally in good condition and grazing and water relatively abundant in the Cape Province. Prospects were favourable for a successful spring lambing season. In some districts frost was experienced during the month, which, however, caused very little damage. Snow was reported from the district of Mount Currie which resulted in stock losses. Although scattered showers occurred in the northern districts of the Orange Free State, it was generally hot and dry. As a result of lack of grazing, stock were from fair to poor condition, and it was expected that they would show a further rapid falling off if rains did not come soon. Good rains fell in some areas in Natal and the adjoining districts of the Transvaal, but only scattered showers occurred in the lowveld areas, where generally drought prevailed. Grazing was poor, and it was estimated that if rain did not fall soon, critical conditions would be experienced.

## TRADE

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<b>Wheat. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	185	0	0	0	185	0	0	0	220	0
Hungary	1,195	470	0	0	1,323	974	0	0	6,526	0
Lithuania	7	0	0	0	13	2	0	0	584	0
Poland	29	55	0	0	112	276	0	2	1,274	9
Romania	...	...	...	...	...	...	...	...	2,538	4
Yugoslavia	0	434	0	0	2	553	0	0	2,500	2
U. S. S. R.	4,392	196	...	...	6,726	642	...	...	1,285	4) 979
Canada	10,364	10,554	0	...	23,382	19,379	...	...	86,627	2
United States	9	71	2,606	2,260	29	1,144	4,775	3,131	1,462	15,540
Argentina	6,074	9,264	—	—	12,357	20,227	—	—	105,860	—
Chile	...	...	...	...	1) 33	1) 216	1) 0	1) 0	659	410
Syria and Lebanon	11	11	2	2	13	46	2	4	278	18
Algeria	...	...	...	...	1) 364	1) 701	1) 11	1) 24	7,028	328
French Morocco	538	298	0	...	778	895	0	0	4,489	0
Tunisia	428	132	13	49	1,049	395	26	88	2,258	185
Australia	3,051	2,650	0	0	4,826	6,043	0	0	44,924	0
New Zealand	...	...	...	...	1) 0	1) 0	1) 7	1) 0	0	22
<i>Importing Countries:</i>										
Germany	220	37	110	822	220	106	304	2,207	121	7,083
Austria	0	0	159	357	0	0	298	723	0	4,802
Belgium	66	168	2,414	3,252	126	247	4,451	6,147	1,742	25,450
Denmark	15	18	340	545	15	18	728	1,131	31	10,763
Spain	0	0	0	0	0	0	0	0	0	0
Estonia	20	0	0	0	44	0	0	0	121	0
Irish Free State	0	0	395	679	0	0	1,232	1,706	0	9,420
Finland	0	0	148	95	0	0	251	207	0	1,338
France	860	185	1,744	1,561	2,015	979	3,349	3,034	22,688	15,278
Gr. Brit. and N. Irel	51	223	8,212	10,884	71	282	16,098	19,800	827	113,179
Greece	0	0	580	580	0	0	1,667	1,246	0	8,684
Italy	0	0	972	664	0	0	1,512	1,217	9	12,357
Latvia	...	...	...	...	1) 320	1) 0	1) 0	1) 0	659	0
Norway	0	0	214	390	0	0	481	575	0	3,907
Netherlands	2	2	1,224	908	2	2	2,313	1,554	811	11,202
Portugal	—	—	...	...	—	—	1) 29	1) 24	—	207
Sweden	423	77	123	99	597	150	174	163	1,973	902
Switzerland	0	2	1,230	820	0	2	1,922	1,587	2	10,750
Czechoslovakia	0	0	952	0	2	0	1,127	2	4	849
Ceylon	—	—	13	0	—	—	26	2	—	33
China	22	33	434	298	44	86	1,177	485	289	10,889
India	51	37	0	0	55	170	0	0	247	101
Japan	—	—	340	514	—	—	994	1,391	—	10,878
Egypt	0	0	0	18	0	0	0	29	51	1,257
Union of South Afr.	...	...	...	...	...	...	...	...	3) 2	3) 529
<b>Totals</b>	<b>28,013</b>	<b>24,915</b>	<b>22,225</b>	<b>24,797</b>	<b>54,703</b>	<b>53,535</b>	<b>42,954</b>	<b>46,479</b>	<b>298,089</b>	<b>277,357</b>
<b>Rye. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	258	0	55	148	260	22	112	370	51	5,393
Bulgaria	0	0	0	0	0	0	0	0	0	0
Estonia	0	454	0	0	46	454	0	0	783	22
Hungary	51	201	0	0	71	225	0	0	728	0
Latvia	...	...	...	...	1) 119	1) 0	1) 0	1) 0	1,929	0
Lithuania	97	18	0	0	185	26	0	0	1,199	0
Poland	231	1,179	0	0	761	1,770	0	0	11,671	0
Romania	...	...	...	...	...	...	...	...	0	0
Sweden	86	243	0	0	165	615	2	2	2,000	22
U. S. S. R.	139	317	—	—	340	432	—	—	624	—
Canada	29	187	0	0	71	278	0	0	666	11
Argentina	132	430	—	—	231	721	—	—	5,882	—
Algeria	...	...	...	...	1) 7	1) 9	1) 0	1) 0	26	0
<i>Importing Countries:</i>										
Austria	0	0	0	134	0	0	0	134	0	1,779
Belgium	0	0	207	154	18	0	467	163	31	1,797
Denmark	0	2	355	434	0	2	800	1,067	4	4,090
Finland	0	0	9	18	0	0	68	46	0	450
France	0	0	7	4	0	0	9	13	4	35
Italy	0	0	53	7	0	0	57	9	0	179
Norway	0	0	388	289	0	0	842	355	0	2,535
Netherlands	0	130	53	64	0	137	194	170	227	1,854
Switzerland	0	0	9	7	0	0	20	15	0	161
Czechoslovakia	0	0	0	2	0	0	2	4	4	20
United States	0	0	37	291	2	0	855	428	0	5,917
<b>Total</b>	<b>1,023</b>	<b>3,157</b>	<b>1,173</b>	<b>1,552</b>	<b>2,276</b>	<b>4,689</b>	<b>3,428</b>	<b>2,776</b>	<b>25,829</b>	<b>24,265</b>

1) 3) 4) See notes page 910

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<b>Wheat flour. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany . . . . .	4	143	0	4	13	470	2	9	659	73
Bulgaria . . . . .	0	0	0	0	0	0	0	0	0	0
Spain . . . . .	0	0	0	0	2	0	0	0	0	0
France . . . . .	227	315	95	181	445	670	179	313	4,266	1,543
Hungary . . . . .	161	51	0	0	258	71	0	0	809	0
Italy . . . . .	595	326	0	7	1,008	620	2	18	3,748	95
Lithuania . . . . .	0	0	0	0	0	0	0	0	0	0
Poland . . . . .	117	13	0	0	212	24	0	0	750	0
Romania . . . . .	...	...	...	...	...	...	...	...	0	0
Yugoslavia . . . . .	7	4	0	0	11	11	0	0	40	0
U. R. S. S. . . . .	...	...	...	...	...	...	...	...	683	205
Canada . . . . .	776	723	7	37	1,515	1,532	20	90	9,310	390
United States . . . . .	547	869	4	0	1,076	1,720	7	0	7,637	9
Argentina . . . . .	146	150	—	—	328	450	—	—	2,132	—
Chile . . . . .	...	...	...	...	4	15	2	4	49	66
India . . . . .	40	18	2	0	77	44	2	4	309	4
Japan . . . . .	412	483	0	0	950	1,071	2	2	7,203	46
Algeria . . . . .	...	...	...	...	53	93	1	4	911	108
French Morocco . . . . .	0	0	0	0	0	0	0	0	51	0
Tunisia . . . . .	55	90	0	2	86	161	2	4	626	62
Australia . . . . .	1,102	1,210	0	0	2,011	2,416	0	0	14,379	2
<i>Importing Countries:</i>										
Austria . . . . .	0	0	82	31	0	0	130	49	2	774
Belgium . . . . .	4	2	4	18	9	7	13	31	51	148
Denmark . . . . .	7	2	11	46	9	2	35	126	18	474
Estonia . . . . .	0	0	0	0	0	0	0	0	0	0
Irish Free State . . . . .	0	0	13	55	0	0	24	106	0	527
Finland . . . . .	0	0	57	62	0	0	126	148	0	849
Gr. Brit and N. Irel. . . . .	223	256	586	615	492	564	1,303	1,607	3,400	9,103
Greece . . . . .	0	0	2	0	0	0	2	2	0	33
Norway . . . . .	0	0	40	99	2	0	9	229	4	999
Netherlands . . . . .	2	0	64	64	2	0	132	112	9	908
Portugal . . . . .	—	—	...	...	—	—	13	15	—	150
Sweden . . . . .	2	0	...	...	2	...	...	...	4	20
Czechoslovakia . . . . .	0	0	2	4	2	2	0	0	—	403
Ceylon . . . . .	—	—	33	18	—	—	71	49	—	1,499
China . . . . .	—	4	88	49	—	2	179	128	57	384
Indo-China . . . . .	—	—	24	31	—	7	60	60	—	1,149
Java and Madura . . . . .	—	—	71	93	—	—	148	174	—	101
Syria and Lebanon . . . . .	2	0	18	7	4	4	24	11	62	73
Egypt . . . . .	0	0	4	4	0	0	9	11	0	11
Union of South Afr. . . . .	...	...	...	...	...	...	...	...	2	234
New Zealand . . . . .	...	...	...	...	...	...	...	...	2	11
Totals . . . . .	4,429	4,659	1,207	1,427	8,573	9,954	2,604	3,330	57,173	20,444
<b>Barley. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	18	0	0	0	20	0	0	0	0	0
Spain . . . . .	0	0	0	0	0	0	0	0	0	0
Hungary . . . . .	24	13	0	0	42	29	0	0	93	24
Lithuania . . . . .	0	0	0	0	2	0	0	0	176	0
Poland . . . . .	697	1,155	0	0	897	1,365	0	0	7,180	0
Romania . . . . .	...	...	...	...	...	...	...	...	4,198	0
Czechoslovakia . . . . .	71	57	0	0	73	57	0	0	1,140	2
Yugoslavia . . . . .	0	128	9	0	0	231	9	0	538	0
U. S. S. R. . . . .	3,358	719	—	—	5,346	1,742	—	—	3,669	—
Canada . . . . .	117	880	0	0	463	1,424	0	0	7,227	0
United States . . . . .	937	346	4	560	1,213	723	7	631	2,132	5,291
Argentina . . . . .	176	384	—	—	322	816	—	—	9,590	—
Chile . . . . .	...	...	...	...	...	...	...	...	1,217	0
India . . . . .	...	51	18	...	13	104	26	0	392	13
Algeria . . . . .	...	...	...	...	40	117	55	126	1,177	745
Egypt . . . . .	0	0	0	0	0	0	0	0	0	18
French Morocco . . . . .	139	1,373	0	0	227	2,004	0	0	5,706	0
Australia . . . . .	161	231	0	0	225	306	0	0	1,380	0
<i>Importing Countries:</i>										
Germany . . . . .	0	0	51	864	0	0	201	1,109	2	10,498
Austria . . . . .	0	0	15	181	0	0	183	355	0	1,574
Belgium . . . . .	15	29	1,058	1,351	44	53	1,550	1,918	454	8,481
Denmark . . . . .	381	437	2	139	434	507	73	258	1,398	1,030
Irish Free State . . . . .	4	0	0	0	0	0	0	0	4	256
France . . . . .	0	0	273	386	0	0	461	787	9	3,982
Gr. Brit and N. Irel. . . . .	0	0	2,780	1,905	0	2	4,639	3,353	9	14,315
Greece . . . . .	0	0	4	0	0	0	11	0	0	77
Italy . . . . .	0	0	187	143	0	0	333	218	0	1,852
Norway . . . . .	0	0	62	35	0	0	68	35	2	168
Netherlands . . . . .	31	55	653	412	33	62	1,259	1,182	194	5,913
Switzerland . . . . .	0	0	152	216	0	0	231	467	0	2,696
Syria and Lebanon . . . . .	93	2	2	0	99	4	2	4	139	44
Tunisia . . . . .	342	7	9	203	633	11	13	324	395	1,010
Totals . . . . .	6,564	5,867	5,379	6,395	10,130	10,024	9,121	10,767	48,414	57,988

1) See notes page --

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-Sept. 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
Oats. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
Irish Free State . . .	0	0	0	0	0	0	0	0	0	0
Hungary . . .	0	0	0	0	0	0	0	0	0	0
Lithuania . . .	2	0	0	0	2	0	0	0	212	0
Poland . . .	201	55	0	0	227	117	0	0	994	0
Romania . . .	...	...	...	...	...	...	...	...	68	0
Czechoslovakia . . .	15	0	0	0	55	0	0	0	53	2
Yugoslavia . . .	22	71	0	0	51	110	0	0	280	0
Canada . . .	278	313	0	0	500	679	0	0	4,965	0
United States . . .	9	4	2	66	13	4	2	75	150	4,824
Argentina . . .	364	1,041	—	—	1,065	2,460	—	—	13,342	—
Chile . . .	...	...	...	...	1) 62	1) 137	1) 0	1) 0	1) 1,243	1) 0
Tunisia . . .	18	82	0	0	64	157	0	0	467	0
Australia . . .	7	7	0	0	13	40	0	0	265	2
Importing Countries:										
Germany . . .	0	7	15	115	0	9	97	220	13	4,797
Austria . . .	0	0	40	0	0	0	88	57	0	287
Belgium . . .	0	0	0	7	0	0	15	26	0	432
Denmark . . .	22	161	0	112	29	165	18	205	657	884
Estonia . . .	0	0	0	0	0	0	0	0	15	0
Finland . . .	0	0	0	4	0	0	0	4	2	11
France . . .	0	0	20	57	0	4	53	104	33	425
Gr. Brit. and N. Irel. . .	2	2	207	280	2	2	373	586	18	3,488
Italy . . .	0	0	375	540	0	0	602	772	0	4,808
Latvia . . .	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
Norway . . .	0	0	0	0	0	0	0	0	0	64
Netherlands . . .	0	0	57	40	0	0	112	132	11	873
Sweden . . .	0	11	11	0	0	18	11	2	37	24
Switzerland . . .	0	0	238	580	0	0	569	904	0	4,354
Algeria . . .	...	...	...	...	1) 4	1) 11	1) 13	1) 13	132	141
Totals . . .	940	1,754	965	1,801	2,087	3,913	1,953	3,100	22,957	25,415
Maize. — Thousand centals (1 cental = 100 lb.).										
					ELEVEN MONTHS (November 1-Sept. 30)				TWELVE MONTHS (Nov. 1-Oct. 31)	
					1934-35	1933-34	1934-35	1933-34	1933-34	1933-34
Exporting Countries:										
Bulgaria . . .	0	291	0	0	399	2,471	0	0	2,564	0
Hungary . . .	0	33	789	0	130	1,021	2,302	0	1,056	0
Romania . . .	...	...	...	...	2) 8,371	2) 7,778	2) 0	2) 2	10,115	2
Yugoslavia . . .	944	558	0	0	12,134	10,509	0	2	11,810	2
United States . . .	2	179	1,673	249	249	2,258	20,408	483	2,401	763
Argentina . . .	13,794	10,214	—	—	128,078	119,575	—	—	128,166	—
Java and Madura . . .	18	2	—	—	1,420	915	—	—	924	—
Indo-China . . .	1,080	1,268	—	—	7,994	7,088	—	—	8,439	—
Syria and Lebanon . . .	0	0	0	0	2	0	7	66	0	66
Egypt . . .	0	0	2	4	0	2	24	20	2	20
Union of South Afr. . .	1,003	1,603	...	...	8,794	1,997	3) 0	3) 421	3,693	432
Importing Countries:										
Germany . . .	0	0	251	871	0	0	7,606	6,660	0	7,452
Austria . . .	0	0	567	708	0	2	8,819	9,577	2	10,448
Belgium . . .	66	174	1,623	1,440	664	646	14,696	15,470	822	16,824
Denmark . . .	0	0	342	489	0	0	4,848	3,942	0	4,586
Spain . . .	0	0	181	370	0	0	913	1,653	0	1,911
Irish Free State . . .	0	0	428	745	0	0	5,699	6,208	0	6,543
Finland . . .	0	0	203	33	0	0	800	1,270	0	1,312
France . . .	0	0	950	1,191	9	22	12,782	12,123	22	13,607
Gr. Brit. and N. Irel. . .	139	161	5,445	6,958	2,077	2,002	57,400	59,684	2,116	66,597
Greece . . .	0	0	31	2	0	0	944	35	0	37
Italy . . .	0	0	922	152	2	2	4,262	3,774	2	3,874
Norway . . .	0	0	185	423	0	0	2,392	2,754	0	3,084
Netherlands . . .	0	0	1,836	1,825	0	13	17,644	19,914	13	22,011
Poland . . .	0	0	0	0	0	0	0	60	0	60
Portugal . . .	—	—	...	...	—	—	1) 478	1) 299	—	1,669
Sweden . . .	0	0	37	49	0	0	809	3,029	0	3,106
Switzerland . . .	0	0	168	132	0	0	1,550	1,625	0	1,792
Czechoslovakia . . .	0	0	258	271	0	0	2,368	4,903	0	5,150
Canada . . .	0	0	406	240	4	2	3,971	3,558	2	4,090
Japan . . .	—	—	408	0	—	—	1,301	2	—	2
Tunisia . . .	0	0	0	0	4	2	55	101	4	101
Totals . . .	17,046	14,483	16,705	16,152	170,331	156,305	172,078	158,635	172,153	175,541

1) 2) 3) See notes page 910.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Rice. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Spain	2	201	0	0	390	694	0	0	1,010	0
Italy	176	262	7	7	1,770	2,480	57	26	3,519	44
United States	90	33	15	53	1,105	730	454	430	917	558
Brasil	...	...	—	—	1,175	359	—	—	734	—
India	2,053	1,662	637	668	32,119	26,965	3,333	5,247	31,242	8,852
Indo-China	1,967	2,291	...	...	32,536	24,593	15	13	28,462	31
Siem	2,363	3,660	—	—	24,573	30,331	—	—	43,202	—
Egypt	46	20	0	0	758	1,168	15	7	1,508	9
<i>Importing Countries:</i>										
Germany	68	77	306	602	357	540	3,124	4,352	745	6,341
Austria	0	0	86	68	0	0	511	478	0	633
Belgium	2	4	93	165	31	77	692	1,109	97	1,446
Denmark	0	0	7	9	0	0	66	101	0	137
Estonia	—	—	2	2	—	—	11	11	—	15
Irish Free State	0	0	2	2	0	0	46	44	2	57
France	24	44	580	1,204	470	534	7,064	11,076	661	14,171
Gr. Brit. and N. Irel.	9	15	104	154	123	141	2,339	2,372	174	2,862
Greece	0	0	35	44	0	0	432	399	0	533
Hungary	0	0	22	26	0	0	214	282	0	448
Latvia	...	...	...	...	1)	1)	7	4	0	11
Lithuania	0	0	0	2	0	0	4	11	0	15
Norway	0	0	7	13	0	0	84	86	0	106
Netherlands	190	172	247	265	1,521	1,387	2,282	3,197	2,013	3,629
Poland	20	15	42	84	130	112	1,041	926	157	974
Portugal	—	—	...	...	—	—	373	434	—	575
Sweden	—	—	7	13	—	—	183	179	—	223
Switzerland	0	0	49	33	0	0	340	258	0	397
Czechoslovakia	0	0	97	141	0	0	977	1,038	0	1,497
Yugoslavia	0	0	18	26	0	0	282	284	0	439
Canada	0	0	4	22	2	4	586	650	4	732
Chile	—	—	...	...	—	—	170	176	—	340
Ceylon	0	0	1,149	873	2	2	9,365	8,303	4	10,977
China	2	2	423	1,272	62	141	27,659	12,904	150	17,000
Java and Madura	35	26	4	18	77	88	2,491	146	132	1,356
Japan	7	26	84	0	646	1,380	238	64	1,457	152
Syria and Lebanon	0	0	29	9	0	0	280	298	0	428
Algeria	...	...	...	...	1)	1)	110	313	9	355
Tunisia	0	0	0	2	0	0	22	49	0	57
Union of South Afr.	...	...	...	...	3)	3)	507	608	0	1,184
Australia	20	24	0	4	187	187	31	44	244	49
New Zealand	...	...	...	...	1)	1)	53	57	0	73
<b>Totals</b>	<b>7,074</b>	<b>8,534</b>	<b>4,056</b>	<b>5,781</b>	<b>98,036</b>	<b>91,920</b>	<b>65,458</b>	<b>55,976</b>	<b>116,443</b>	<b>76,706</b>
<b>Linseed. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Lithuania	2	2	0	0	93	51	0	0	141	0
Argentina	2,524	2,072	—	—	30,631	23,340	—	—	30,303	—
India	115	728	0	0	1,501	4,822	0	0	6,175	0
Tunisia	0	0	0	0	2	0	0	2	0	2
<i>Importing Countries:</i>										
Germany	0	0	860	569	0	2	4,372	5,979	2	6,986
Belgium	4	7	130	88	88	55	1,839	1,254	68	1,790
Denmark	—	—	37	20	—	—	403	302	—	359
Spain	—	—	51	7	—	—	326	216	—	366
Estonia	0	0	0	0	2	2	4	4	15	4
Finland	0	0	2	2	0	0	60	86	0	104
France	0	0	452	578	2	4	4,416	4,517	7	5,243
Gr. Brit. and N. Irel.	0	0	359	229	2	15	3,907	3,424	15	4,123
Greece	0	0	15	13	0	0	90	88	0	112
Hungary	0	0	0	0	4	4	0	0	13	0
Italy	0	0	161	161	0	0	1,217	1,078	0	1,422
Latvia	...	...	...	...	1)	1)	55	42	79	86
Norway	0	0	15	24	0	0	428	304	0	337
Netherlands	4	7	604	476	66	68	6,982	4,846	77	7,108
Poland	0	0	0	2	0	0	0	170	0	170
Sweden	—	—	42	66	—	—	697	756	—	849
Czechoslovakia	0	0	18	44	0	0	423	399	0	556
Yugoslavia	0	0	11	11	0	0	146	110	0	139
Canada	0	0	0	37	4	2	256	295	4	443
United States	—	—	741	538	—	—	7,663	5,772	—	7,934
Japan	0	0	7	11	2	2	379	370	2	434
Australia	0	0	15	26	0	0	690	403	0	560
<b>Totals</b>	<b>2,649</b>	<b>2,816</b>	<b>3,520</b>	<b>2,902</b>	<b>32,444</b>	<b>28,396</b>	<b>34,353</b>	<b>30,417</b>	<b>36,901</b>	<b>39,127</b>

1) 2) See notes page 910.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-Sept. 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Butter. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Austria . . . . .	551	990	2	2	4,407	4,612	11	154	7,053	157
Denmark . . . . .	24,350	26,927	0	55	231,535	257,055	176	90	330,311	20
Estonia . . . . .	2,760	2,313	0	0	18,376	17,401	0	0	22,306	0
Irish Free State . . . . .	5,745	7,551	7	9	52,602	48,482	40	79	56,886	84
Finland . . . . .	1,737	1,764	0	0	17,439	19,429	0	0	24,463	13
Hungary . . . . .	602	1,160	0	0	3,300	6,581	0	0	8,790	0
Latvia . . . . .	...	...	...	...	26,242	23,325	1)	1)	34,615	0
Lithuania . . . . .	3,325	2,328	0	0	20,979	16,782	0	0	21,321	0
Norway . . . . .	0	0	0	0	247	344	0	2	547	2
Netherlands . . . . .	7,765	5,675	18	139	80,912	68,138	251	600	81,320	1,173
Poland . . . . .	1,539	1,204	0	0	7,879	8,252	2	0	9,782	9
Sweden . . . . .	3,832	4,473	0	0	37,525	39,712	2	4	51,152	4
U. S. S. R. . . . .	...	...	—	—	11,131	17,844	—	—	83,562	—
Argentina . . . . .	60	624	—	—	9,784	10,520	—	—	18,345	—
India . . . . .	29	22	62	44	172	148	556	432	212	642
Syria and Lebanon . . . . .	35	11	18	154	381	262	256	633	293	809
Australia . . . . .	10,452	11,596	0	0	173,559	160,508	2	0	246,784	2
New Zealand . . . . .	16,372	23,021	—	—	213,503	212,921	—	—	292,830	—
<i>Importing Countries:</i>										
Germany . . . . .	0	0	13,898	11,612	11	7	113,697	78,844	9	136,165
Belgium . . . . .	4	13	412	1,292	49	82	8,481	13,166	108	20,629
Spain . . . . .	0	2	0	0	22	11	71	134	15	143
France . . . . .	1,270	611	165	146	8,565	5,229	1,034	9,178	7,297	9,603
Gr. Brit. and N. Irel. . . . .	714	690	75,021	62,964	14,158	9,689	839,164	862,063	12,635	1,086,713
Greece . . . . .	—	—	115	97	—	—	705	443	—	690
Italy . . . . .	40	13	18	128	282	240	776	3,342	276	3,801
Switzerland . . . . .	0	0	11	9	2	0	128	633	0	653
Czechoslovakia . . . . .	0	0	132	104	0	22	2,094	1,991	22	2,229
Canada . . . . .	220	33	44	11	503	295	139	2,829	428	2,873
United States . . . . .	384	86	121	99	1,753	1,127	21,936	600	1,321	1,164
Ceylon . . . . .	—	—	40	26	—	—	611	522	—	681
Java and Madura . . . . .	—	—	560	578	—	—	7,249	7,701	—	10,313
Japan . . . . .	—	—	2	4	—	—	15	42	—	64
Egypt . . . . .	2	4	86	71	119	68	745	604	82	789
Tunisia . . . . .	2	2	62	115	15	7	1,444	1,508	22	2,114
<b>Totals . . . . .</b>	<b>81,790</b>	<b>91,113</b>	<b>90,794</b>	<b>77,659</b>	<b>935,452</b>	<b>929,093</b>	<b>999,585</b>	<b>985,594</b>	<b>1,312,787</b>	<b>1,281,539</b>
<b>Cheese. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	503	399	0	0	2,738	1,373	0	0	2,652	0
Denmark . . . . .	1,276	1,080	0	31	9,991	10,232	22	64	13,891	73
Finland . . . . .	728	908	2	0	6,634	5,922	13	11	8,523	40
Italy . . . . .	5,829	4,791	1,614	1,250	39,884	39,593	8,715	8,109	55,248	10,214
Lithuania . . . . .	7	172	0	0	459	1,433	2	2	2,200	2
Norway . . . . .	289	591	22	22	2,167	3,274	172	134	4,418	214
Netherlands . . . . .	12,961	11,976	68	57	102,379	102,396	542	1,235	134,892	1,455
Poland . . . . .	2	29	18	35	547	1,821	223	430	3,926	531
Switzerland . . . . .	412	4,431	322	657	30,406	29,824	2,443	3,975	39,143	5,353
Czechoslovakia . . . . .	141	172	282	187	1,151	1,347	2,024	2,013	1,995	2,628
Yugoslavia . . . . .	558	461	7	2	2,870	2,899	42	35	4,045	57
Canada . . . . .	19,950	7,650	84	57	31,945	29,013	847	615	61,167	946
Australia . . . . .	833	1,261	11	4	10,624	6,473	55	51	12,467	77
New Zealand . . . . .	10,421	9,158	...	...	143,530	164,690	1)	0	222,266	2
<i>Importing Countries:</i>										
Germany . . . . .	44	185	5,736	6,341	560	1,541	45,060	56,317	2,114	74,488
Austria . . . . .	668	218	152	132	5,448	2,584	1,431	1,389	3,860	1,720
Belgium . . . . .	62	22	5,503	4,674	245	295	39,496	35,018	353	47,818
Spain . . . . .	7	4	236	198	90	108	1,806	1,640	123	2,482
Irish Free State . . . . .	172	49	2	4	443	176	53	51	514	64
France . . . . .	1,609	1,715	2,992	3,452	17,571	17,915	24,919	26,352	25,973	35,173
Gr. Brit. and N. Irel. . . . .	500	485	26,594	23,792	4,178	4,231	229,251	251,983	5,968	334,718
Greece . . . . .	0	77	55	20	126	968	996	157	1,144	295
Hungary . . . . .	31	51	0	0	179	106	2	0	176	0
Portugal . . . . .	—	—	...	...	—	—	1)	236	—	525
Sweden . . . . .	—	—	192	115	—	—	931	778	—	1,248
United States . . . . .	73	134	3,633	4,063	961	1,109	34,017	33,779	1,512	47,532
India . . . . .	0	2	101	117	—	4	809	752	4	1,151
Java and Madura . . . . .	—	—	198	130	—	—	1,429	1,265	—	1,656
Syria and Lebanon . . . . .	29	44	60	106	430	357	710	307	534	1,221
Algeria . . . . .	...	...	...	...	86	77	7,542	7,346	119	11,288
Egypt . . . . .	0	11	705	582	64	79	5,520	4,592	126	6,537
Tunisia . . . . .	4	4	106	141	46	82	1,947	2,048	86	2,959
<b>Totals . . . . .</b>	<b>56,821</b>	<b>46,083</b>	<b>48,695</b>	<b>46,169</b>	<b>415,754</b>	<b>429,922</b>	<b>411,274</b>	<b>441,184</b>	<b>609,439</b>	<b>592,467</b>

1) See notes page 910.

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-Sept. 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<b>Cotton. — Thousand cents (1 cental = 100 lbs.).</b>										
<i>Exporting Countries</i>										
United States . . . . .	2,683	2,500	31	40	4,023	3,940	73	93	26,542	536
Argentina . . . . .	101	51	—	—	271	181	—	—	694	—
Brazil . . . . .	—	—	—	—	265	326	—	—	3,567	—
India . . . . .	505	586	86	75	1,001	1,310	185	170	12,553	1,850
Egypt . . . . .	423	401	—	—	681	800	—	—	7,912	—
<i>Importing Countries</i>										
Germany . . . . .	119	101	631	375	185	192	1,347	866	966	6,391
Austria . . . . .	0	0	53	53	0	0	112	95	4	672
Belgium . . . . .	37	40	128	121	37	82	128	258	710	2,068
Denmark . . . . .	—	—	15	15	—	—	26	35	—	185
Spain . . . . .	2	0	101	101	4	2	236	201	51	2,161
Estonia . . . . .	0	0	9	7	0	0	18	18	0	117
Finland . . . . .	0	0	20	18	0	0	35	44	4	287
France . . . . .	20	97	278	291	42	174	672	569	620	5,055
Gr. Brit. and N. Irel .	60	40	628	752	121	115	1,246	1,784	710	12,170
Greece . . . . .	11	0	13	13	11	0	29	24	11	165
Hungary . . . . .	0	0	33	29	0	0	68	68	0	489
Italy . . . . .	0	0	223	203	0	0	443	392	2	3,501
Latvia . . . . .	—	—	—	—	—	—	—	—	—	108
Norway . . . . .	0	0	2	2	0	0	7	7	0	64
Netherlands . . . . .	0	0	62	64	0	0	141	126	4	84
Poland . . . . .	0	0	128	104	0	2	254	227	9	1,437
Portugal . . . . .	—	—	—	—	—	—	—	—	—	448
Sweden . . . . .	—	—	20	9	—	—	71	60	—	624
Switzerland . . . . .	0	0	22	33	0	0	42	68	2	564
Czechoslovakia . . . .	4	9	134	128	9	15	269	254	73	1,554
Yugoslavia . . . . .	—	—	18	15	—	—	49	37	20	320
Canada . . . . .	—	—	60	77	—	—	130	163	—	1,241
China . . . . .	37	35	44	99	60	62	108	388	384	1,640
Japan . . . . .	51	29	675	1,122	84	73	1,548	2,648	595	17,430
Algeria . . . . .	—	—	—	—	—	—	—	—	—	4
<b>Totals</b>	<b>4,053</b>	<b>3,889</b>	<b>3,414</b>	<b>3,746</b>	<b>6,794</b>	<b>7,274</b>	<b>7,281</b>	<b>8,624</b>	<b>55,437</b>	<b>61,928</b>

**Wool. — (Thousand lbs.).**

COUNTRIES	TWO MONTHS (September 1-August 31)				TWELVE MONTHS (Sept 1-August 31)			
	1934-35	1933-34	1934-35	1933-34	1934-35	1933-34	1934-35	1933-34
	1934-35	1933-34	1934-35	1933-34	1934-35	1933-34	1934-35	1933-34
<i>Exporting Countries</i>								
Irish Free State . . . .	1,506	858	49	77	13,486	16,810	655	697
Hungary . . . . .	46	256	198	95	1,867	6,270	3,267	2,264
Argentina . . . . .	6,627	3,419	—	—	268,475	260,261	—	—
Chile . . . . .	2,125	798	—	—	32,159	15,922	—	—
India . . . . .	7,485	3,047	390	375	21,918	27,174	245	4
Syria and Lebanon . . .	1,021	101	53	15	52,565	55,724	7,436	4,643
Algeria . . . . .	—	—	—	—	5,545	4,799	82	324
Egypt . . . . .	359	42	7	0	8,177	9,253	2,319	2,368
Un. of S. Africa . . . .	3,206	1,067	—	—	3,576	2,721	55	57
Australia . . . . .	267	249	—	—	213,563	228,426	3)	57
New Zealand . . . . .	46,564	50,001	917	62	8,620	6,228	3)	1,418
— (a) — (b)	4,729	5,472	42	18	815,232	703,392	3,695	7,035
— (a) — (b)	5,165	683	—	—	73,571	65,852	132	342
— (a) — (b)	3,977	2,937	—	—	160,673	228,155	101	0
— (a) — (b)	—	—	—	—	46,196	47,122	37	15
<i>Importing Countries</i>								
Germany . . . . .	84	2,313	7,835	7,650	5,701	2,899	235,040	285,918
Austria . . . . .	66	419	2,518	1,429	2,086	5,935	55,398	62,340
Belgium . . . . .	24	187	970	573	1,038	688	18,843	18,045
Denmark . . . . .	2,088	2,848	6,852	4,515	99,341	96,175	222,643	173,077
Spain . . . . .	1,969	968	463	273	20,113	24,134	4,394	5,463
Finland . . . . .	33	33	518	481	401	225	4,700	4,938
France . . . . .	756	143	1,378	452	3,106	4,292	10,697	5,970
Gr. Brit. and N. Irel .	22	2	481	395	220	44	5,417	5,615
Greece . . . . .	3,239	4,275	9,528	4,630	43,914	51,150	375,164	374,703
Italy . . . . .	12,979	8,243	27,805	20,124	317,070	356,872	836,329	843,540
Norway . . . . .	130	31	611	419	721	1,369	7,568	4,612
Netherlands . . . . .	29	106	7,549	2,762	628	1,243	88,373	142,633
Poland . . . . .	24	128	959	1,365	1,186	4,103	14,127	21,129
Sweden . . . . .	90	126	218	157	1,329	1,779	2,304	2,335
Switzerland . . . . .	267	231	93	183	3,060	4,482	6,301	9,081
Czechoslovakia . . . .	66	267	340	375	1,501	1,398	7,829	6,570
Yugoslavia . . . . .	0	33	2,169	1,113	112	745	36,341	38,111
Canada . . . . .	—	—	1,409	875	—	—	18,265	22,882
United States . . . . .	2	44	622	778	212	247	22,053	20,130
Japan . . . . .	55	481	2,213	1,572	1,437	2,507	33,215	35,285
Tunisia . . . . .	71	77	549	452	1,107	320	7,690	6,259
Totals	1,241	472	809	428	6,261	8,155	11,973	18,495
— (a) — (b)	320	66	21,952	7,566	2,485	4,405	147,234	156,050
— (a) — (b)	0	9	2,864	1,823	507	224,482	202,370	202,370
— (a) — (b)	62	35	42	15	983	996	295	377
— (a) — (b)	106,694	90,467	102,403	61,047	2,240,132	2,252,680	2,416,085	2,485,097



COUNTRIES	SEPTEMBER		THREE MONTHS (July 1-Sept 30)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	SEPTEMBER		THREE MONTHS (July 1-Sept. 30)		TWELVE MONTHS (July 1- June 30)
	1935	1934	1935	1934	1934-35		1935	1934	1935	1934	1934-35
<b>Coffee. — (Thousand lb.).</b>						<b>Tea. — (Thousand lb.).</b>					
<b>EXPORTS.</b>						<b>EXPORTS.</b>					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil . . . . .	...	...	1) 338,034	1) 235,675	1,773,792	Ceylon . . . . .	12,809	14,621	44,642	52,212	213,701
India . . . . .	672	229	875	309	16,521	China . . . . .	5,531	13,457	20,966	37,232	96,477
Java and Madura .	7,632	8,821	19,317	24,948	65,500	India . . . . .	42,388	47,638	107,392	117,198	108,701
<i>Importing Countries:</i>						Java and Madura .	7,123	7,326	24,143	25,909	120,847
Germany . . . . .	0	2	0	31	66	Japan . . . . .	5,298	6,175	15,620	12,066	30,986
Belgium . . . . .	42	11	163	37	152	<i>Importing Countries:</i>					
France . . . . .	0	0	2	2	9	Belgium . . . . .	0	0	0	0	9
Gr. Britain and N. Ireland . . . . .	1,940	1,030	7,809	3,142	18,962	Irish Free State .	2	88	9	236	256
Netherlands . . . .	531	1,105	1,761	3,064	11,524	France . . . . .	0	0	2	7	26
Portugal . . . . .	...	...	1) 406	1) 417	2,712	Gr. Brit. and N. Ire.	6,215	3,754	16,760	16,585	68,831
Switzerland . . . .	2	88	2	222	553	Netherlands . . . .	11	11	31	33	132
Canada . . . . .	20	7	44	13	115	United States . . .	26	108	119	342	765
Ceylon . . . . .	0	0	0	2	4	Syria and Lebanon .	0	0	0	0	9
Syria and Lebanon .	0	0	0	0	0	Algeria . . . . .	...	...	1) 4	1) 20	93
Australia . . . . .	4	7	9	15	73	Union of S. Africa .	33	62	...	...	802
Totals . . . . .	—	—	—	—	1,889,983	Australia . . . . .	...	62	146	243	802
<b>IMPORTS.</b>						New Zealand . . . .	...	...	1) 18	1) 11	112
<i>Importing Countries:</i>						Totals . . . . .	79,436	93,240	229,852	262,094	641,778
Germany . . . . .	28,281	19,410	82,336	86,772	327,491	<b>IMPORTS.</b>					
Austria . . . . .	939	1,188	2,903	3,333	12,291	<i>Importing Countries:</i>					
Belgium . . . . .	9,050	8,411	24,773	26,085	103,750	Germany . . . . .	829	1,069	2,500	3,113	10,216
Bulgaria . . . . .	141	93	269	231	1,060	Austria . . . . .	88	68	165	161	836
Denmark . . . . .	3,411	4,195	11,954	14,185	58,260	Belgium . . . . .	40	46	112	112	613
Spain . . . . .	4,312	4,921	13,010	10,931	52,117	Denmark . . . . .	101	77	273	216	1,230
Estonia . . . . .	13	15	37	37	163	Spain . . . . .	20	20	46	51	273
Irish Free State . .	20	26	104	68	520	Estonia . . . . .	9	9	22	13	77
Finland . . . . .	3,494	3,053	10,192	9,473	39,117	Irish Free State . .	2,372	1,989	4,949	5,924	22,818
France . . . . .	30,880	27,172	104,857	95,242	392,274	Finland . . . . .	24	20	60	46	247
Gr. Britain and N. Ireland . . . . .	739	1,010	2,392	4,262	57,574	France . . . . .	249	112	509	311	2,189
Greece . . . . .	1,111	959	3,245	2,994	12,604	Gr. Britain and N. Ireland . . . . .	43,561	50,305	120,095	141,359	507,905
Hungary . . . . .	344	946	802	1,854	5,534	Ireland . . . . .	53	29	115	62	448
Italy . . . . .	9,972	7,588	22,719	20,798	86,975	Greece . . . . .	29	139	57	198	611
Latvia . . . . .	...	...	1) 26	1) 2	143	Hungary . . . . .	22	18	44	42	342
Lithuania . . . . .	33	29	75	93	419	Italy . . . . .	...	...	1) 9	1) 9	84
Norway . . . . .	3,075	2,480	10,895	7,048	35,894	Latvia . . . . .	...	...	1) 18	1) 20	77
Netherlands . . . .	7,094	4,579	22,445	16,557	62,949	Lithuania . . . . .	33	42	90	82	337
Poland . . . . .	646	1,003	2,350	3,508	15,668	Norway . . . . .	3	2	90	82	337
Portugal . . . . .	...	...	1) 1,964	1) 1,651	15,847	Netherlands . . . .	2,249	2,489	7,187	9,180	30,012
Sweden . . . . .	9,502	7,463	26,057	23,746	97,506	Poland . . . . .	276	247	814	747	3,814
Switzerland . . . .	2,105	1,594	12,765	6,208	32,476	Portugal . . . . .	...	...	1) 53	1) 77	399
Czechoslovakia . .	2,485	2,057	5,889	6,025	23,810	Sweden . . . . .	112	88	227	198	944
Yugoslavia . . . . .	1,171	946	3,488	3,183	13,770	Switzerland . . . .	185	154	518	346	1,609
Canada . . . . .	2,288	2,302	7,165	6,722	31,800	Czechoslovakia . .	168	112	313	238	1,056
United States . . .	149,205	121,312	420,862	325,430	1,551,815	Yugoslavia . . . . .	42	44	90	93	439
Chile . . . . .	...	...	1) 1,713	1) 919	5,743	Canada . . . . .	2,965	2,152	8,971	5,318	30,287
Ceylon . . . . .	328	216	906	891	3,272	United States . . .	8,457	7,425	20,807	23,089	83,571
Japan . . . . .	547	448	1,724	1,420	7,017	Chile . . . . .	...	...	1) 972	1) 220	5,093
Syria and Lebanon .	260	143	509	328	2,286	Syria and Lebanon .	...	...	1) 44	1) 13	470
Algeria . . . . .	...	...	1) 5,260	1) 5,174	31,207	Algeria . . . . .	...	...	1) 467	1) 628	2,899
Egypt . . . . .	1,817	1,197	5,046	3,622	15,756	Egypt . . . . .	1,102	1,528	3,364	3,823	15,966
Tunisia . . . . .	181	174	604	705	3,382	Tunisia . . . . .	...	224	789	939	3,417
Un. of S. Africa . .	...	...	...	...	26,960	Union of S. Africa .	...	...	...	...	13,056
Australia . . . . .	423	163	1,288	591	3,567	Australia . . . . .	3,294	2,919	11,120	12,125	46,875
New Zealand . . . .	...	...	1) 44	1) 44	456	New Zealand . . . .	...	...	1) 1,779	1) 1,700	9,374
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
India . . . . .	0	0	0	0	0	China . . . . .	26	73	126	223	602
Totals . . . . .	273,867	225,093	810,668	690,132	3,131,473	India . . . . .	728	476	1,896	961	3,148
<b>EXPORTS.</b>						Java and Madura .	95	207	333	692	1,649
<i>Importing Countries:</i>						Totals . . . . .	67,367	72,104	188,934	212,329	802,983

1) See notes page 910.

COUNTRIES	SEPTEMBER		TWELVE MONTHS (Oct. 1 Sept. 30)		TWELVE MONTHS (Oct. 1- Sept. 30)	COUNTRIES	SEPTEMBER		TWO MONTHS (Aug. 1-Sept. 30)		TWELVE MONTHS (August 1- July 31)
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1935	1934	1934-35
<b>Cacao. — (Thousand lb.).</b>						<b>Total Wheat and Flour *)</b>					
<b>EXPORTS.</b>						<b>(Thousand centals).</b>					
<i>Exporting Countries:</i>						<i>a) NET EXPORTS.</i>					
Grenada . . . . .	220	218	8,869	9,632	—	Germany . . . . .	117	5)	5)	5)	5)
Dominican Republ. . . . .	560	344	62,420	49,818	—	Bulgaria . . . . .	185	0	185	0	220
Brazil . . . . .	—	—	1) 208,128	1) 194,140	—	Spain . . . . .	0	0	2	0	0
Ecuador . . . . .	3,307	1,726	41,870	37,084	—	Estonia . . . . .	20	0	44	0	121
Trinidad . . . . .	1,709	1,100	45,748	29,057	—	France . . . . .	5)	5)	5)	5)	11,041
Venezuela . . . . .	2,205	2,205	27,688	25,223	—	Hungary . . . . .	1,409	538	1,667	1,069	7,604
Ceylon . . . . .	573	196	7,893	8,841	—	Latvia . . . . .	—	—	320	1)	659
Java and Madura . . . . .	300	948	3,283	4,195	—	Lithuania . . . . .	7	0	13	2	584
French Cameroon . . . . .	1,521	2,057	48,934	41,238	—	Poland . . . . .	185	73	395	306	2,264
Ivory Coast . . . . .	3,457	4,943	97,575	78,681	—	Romania . . . . .	—	—	—	—	2,533
Gold Coast . . . . .	20,591	4,888	541,034	494,792	—	Sweden . . . . .	302	5)	425	5)	1,069
Nigeria and British Cameroon . . . . .	3,644	2,820	184,217	159,165	—	Yugoslavia . . . . .	9	441	18	569	2,551
Saint Thomas and Prince Is. . . . .	1,091	836	22,073	19,795	—	U. S. S. R. . . . .	7) 4,392	7) 196	7) 6,726	7) 642	944
French Togoland . . . . .	677	20	19,674	12,932	—	Canada . . . . .	11,389	11,468	25,375	21,301	98,518
<i>Importing Countries:</i>						United States . . . . .	5)	5)	5)	306	5)
Germany . . . . .	0	0	88	205	—	Argentina . . . . .	6,268	9,464	12,796	20,827	108,701
Belgium . . . . .	0	9	176	18	—	Chile . . . . .	—	—	35	231	225
France . . . . .	0	0	2	0	—	India . . . . .	101	62	154	229	551
Gr. Brit. and N. Irel. . . . .	937	1,206	15,499	13,492	—	Japan . . . . .	209	130	269	33	5)
Netherlands . . . . .	644	600	4,643	7,368	—	Syria and Lebanon . . . . .	5)	0	5)	33	207
Australia . . . . .	0	7	408	322	—	Algeria . . . . .	—	—	412	1)	794
<b>Totals . . . . .</b>	<b>41,436</b>	<b>24,123</b>	<b>1,340,222</b>	<b>1,185,998</b>	<b>—</b>	French Morocco . . . . .	538	298	778	895	4,557
						Tunisia . . . . .	487	201	1,135	516	2,637
						Australia . . . . .	4,522	4,264	7,507	9,264	64,093
						<b>Totals . . . . .</b>	<b>30,140</b>	<b>27,135</b>	<b>58,256</b>	<b>57,019</b>	<b>316,853</b>
						<i>Importing Countries:</i>	<b>b) NET IMPORTS.</b>				
<i>Importing Countries:</i>						Germany . . . . .	6)	600	48	1,486	6,180
Germany . . . . .	14,791	16,389	165,896	218,563	—	Austria . . . . .	267	399	472	787	5,831
Austria . . . . .	1,140	946	12,485	10,282	—	Belgium . . . . .	2,348	3,104	4,332	5,933	23,839
Belgium . . . . .	2,835	2,075	20,686	24,954	—	Denmark . . . . .	331	586	747	1,279	11,341
Bulgaria . . . . .	15	84	805	798	—	Irish Free State . . . . .	412	752	1,265	1,847	10,124
Denmark . . . . .	1,045	295	8,552	8,468	—	Finland . . . . .	225	176	419	403	2,469
Spain . . . . .	140	1,001	22,615	24,963	—	France . . . . .	708	1,197	2,522	1,579	6)
Estonia . . . . .	410	4	756	644	—	Gr. Brit. and N. Irel. . . . .	8,647	11,140	17,110	20,909	119,956
Irish Free State . . . . .	181	220	2,820	4,449	—	Greece . . . . .	582	580	1,669	1,248	8,728
Finland . . . . .	24	13	256	157	—	Italy . . . . .	179	238	172	414	7,478
France . . . . .	7,350	5,732	90,509	94,321	—	Norway . . . . .	267	522	602	882	5,232
Gr. Brit. and N. Irel. . . . .	6,766	860	196,128	176,467	—	Netherlands . . . . .	1,303	992	2,485	1,702	11,590
Greece . . . . .	207	154	2,840	2,868	—	Portugal . . . . .	—	—	46	1)	44
Hungary . . . . .	1,023	300	8,638	6,477	—	Sweden . . . . .	6)	22	6)	13	6)
Italy . . . . .	1,239	1,122	26,652	18,470	—	Switzerland . . . . .	7) 1,230	7) 818	7) 1,922	7) 1,585	7) 10,748
Latvia . . . . .	—	—	1,144	1,532	—	Czechoslovakia . . . . .	955	7	1,124	4	864
Lithuania . . . . .	42	24	758	545	—	<b>Total Europe . . . . .</b>	<b>17,454</b>	<b>21,133</b>	<b>34,955</b>	<b>40,115</b>	<b>224,788</b>
Norway . . . . .	216	320	6,731	5,564	—	United States . . . . .	1,874	1,032	3,320	6)	3,904
Netherlands . . . . .	9,211	5,900	134,247	124,522	—	Ceylon . . . . .	57	24	121	66	571
Poland . . . . .	882	948	15,845	14,253	—	China . . . . .	529	324	1,369	567	12,522
Portugal . . . . .	—	—	1,027	1,008	—	Indo-China . . . . .	33	42	79	79	511
Sweden . . . . .	549	608	12,103	9,749	—	Japan . . . . .	6)	6)	6)	6)	1,336
Switzerland . . . . .	608	258	16,052	16,455	—	Java and Madura . . . . .	95	123	196	231	1,532
Czechoslovakia . . . . .	2,619	1,424	23,199	23,499	—	Syria and Lebanon . . . . .	11	0	15	6)	6)
Yugoslavia . . . . .	157	86	1,867	1,537	—	Egypt . . . . .	7	24	11	44	1,303
Canada . . . . .	1,259	869	25,790	22,355	—	Union of S. Africa . . . . .	—	—	—	—	3)
United States . . . . .	28,195	42,499	566,112	412,535	—	New Zealand . . . . .	—	—	24	1)	33
Japan . . . . .	0	168	3,142	2,337	—	<b>Totals . . . . .</b>	<b>20,060</b>	<b>22,702</b>	<b>40,090</b>	<b>41,135</b>	<b>247,336</b>
Australia . . . . .	423	1,881	14,500	16,239	—						
New Zealand . . . . .	—	—	3,303	2,436	—						
<b>Totals . . . . .</b>	<b>81,291</b>	<b>84,180</b>	<b>1,385,458</b>	<b>1,246,447</b>	<b>—</b>						

\*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333,333 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 31 August. — 2) Data up to 31 July. — 3) Data up to 30 June — 4) Data up to 31 May. — 5) See Net Imports. — 6) See Net Exports. — 7) Wheat only.

## STOCKS OF CEREALS

## Total stocks of wheat in the United States 1).

LOCATION	First day of month				
	October 1935	July 1935	April 1935	October 1934	October 1933
	1,000 centals				
On farms . . . . .	154,345	25,156	56,219	137,460	171,198
In interior mills and elevators. . . . .	62,029	18,878	41,352	69,491	...
Commercial wheat in store . . . . .	47,822	13,171	31,129	72,045	93,991
In merchant mills and attached elevators 2) . . . . .	66,705	27,511	38,866	69,357	73,205
In transit to merchant mills and bought to arrive 2) . . . . .	12,895	4,285	4,897	11,232	8,684
Stored for others by merchant mills 2) . . . . .	4,543	2,172	3,965	6,601	7,645
<i>Total U. S. wheat as grain . . . . .</i>	<i>348,339</i>	<i>91,173</i>	<i>176,428</i>	<i>366,186</i>	<i>...</i>
Flour (in terms of grain) in merchant mills 2) . . . . .	11,339	11,035	10,393	10,610	11,575
<i>Total U. S. wheat . . . . .</i>	<i>359,678</i>	<i>102,208</i>	<i>186,821</i>	<i>376,796</i>	<i>...</i>
Canadian wheat in store in bond in the U. S. . . . .	12,360	5,567	9,793	8,533	3,451
Wheat of other origin in store in bond in the U. S. . . . .	22	867	209	0	0
<b>TOTAL WHEAT IN THE U. S. . . . .</b>	<b>372,060</b>	<b>108,642</b>	<b>196,823</b>	<b>385,329</b>	<b>...</b>

1) Incomplete data: wheat in transit on rail or water with other destination than to merchant mills and attached elevators and wheat flour in other positions than in these same mills, etc., are not included. — 2) The figures of the partial quarterly census, given by the Bureau of Census, are raised to represent totals.

## Wheat and wheat-flour stocks held by commercial mills in the United States 1)

LOCATION	Last day of month				
	September 1935	June 1935	March 1935	September 1934	September 1933
	1,000 centals				
Wheat stocks the property of commercial millers:					
Wheat in transit to merchant mills and bought to arrive . . . . .	12,392	3,985	4,760	10,367	8,094
Wheat held by mills and mill-elevators attached to mills . . . . .	64,104	25,585	37,778	64,017	68,227
Wheat in other positions 2) . . . . .	16,979	5,650	9,850	22,158	28,009
<i>Total . . . . .</i>	<i>93,475</i>	<i>35,220</i>	<i>52,388</i>	<i>96,542</i>	<i>104,330</i>
Wheat-flour in mills and warehouses, and in transit, sold and unsold. . . . .	7,574	7,132	7,021	6,807	7,498
Wheat stored for others in mills and mill-elevators . . . . .	4,366	2,020	3,854	6,093	7,126
<b>GRAND TOTAL 3) . . . . .</b>	<b>108,737</b>	<b>47,502</b>	<b>66,344</b>	<b>112,428</b>	<b>122,343</b>

1) Partial census, including mills accounting for over 90 % of the total capacity of all commercial mills. — 2) These stocks are included in the total quantities in country elevators or in the total quantities in public terminal elevators and private terminal elevators not attached to mills. — 3) Including flour in terms of grain.

## Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
<b>WHEAT:</b>					
Canadian in Canada . . . . .	143,645	134,524	105,173	142,181	149,405
U. S. in Canada . . . . .	0	0	0	629	1,634
U. S. in the United States . . . . .	50,596	47,822	37,497	65,111	91,957
Canadian in the United States . . . . .	19,230	12,360	11,143	10,546	5,179
Of other origin in the United States . . . . .	11	22	3	21	0
Total . . . . .	213,482	194,728	153,816	218,488	248,175
<b>RYE:</b>					
Canadian in Canada . . . . .	2,490	2,178	1,833	2,264	2,821
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	5,089	4,708	3,954	6,901	7,368
Canadian in the United States . . . . .	0	0	15	339	324
Of other origin in the United States . . . . .	48	1,243	1,417	30	0
Total . . . . .	7,627	8,129	7,219	9,534	10,513
<b>BARLEY:</b>					
Canadian in Canada . . . . .	4,884	4,062	1,708	6,689	5,766
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	8,849	6,681	4,145	8,415	9,911
Canadian in the United States . . . . .	54	60	108	0	0
Of other origin in the United States . . . . .	0	109	0	0	0
Total . . . . .	13,787	10,912	5,961	15,104	15,677
<b>OATS:</b>					
Canadian in Canada . . . . .	4,655	3,789	1,958	5,364	6,475
U. S. in Canada . . . . .	0	0	0	52	316
U. S. in the United States . . . . .	14,624	13,189	8,193	7,758	15,958
Canadian in the United States . . . . .	50	0	0	85	0
Of other origin in the United States . . . . .	0	0	0	79	0
Total . . . . .	19,329	16,978	10,151	13,338	22,749
<b>MAIZE:</b>					
U. S. in Canada . . . . .	1	2	100	3,526	5,728
Of other origin in Canada . . . . .	629	1,257	1,236	629	736
U. S. in the United States . . . . .	1,154	1,916	3,167	32,750	34,359
Of other origin in the United States . . . . .	172	255	956	0	0
Total . . . . .	1,956	3,430	5,459	36,905	40,823

## Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
Wheat (and flour in terms of grain) . . . . .	17,184	14,309	11,136	20,170	17,218
Rye . . . . .	245	312	202	274	413
Barley . . . . .	2,280	3,936	2,380	2,352	4,036
Oats . . . . .	515	755	710	1,213	1,066
Maize . . . . .	17,486	15,883	16,776	13,003	9,610

## Stocks of cereals belonging to farmers in Germany.

PRODUCTS	% stocks: total production				Stocks in 1,000 centals			
	31 Oct. 1935	30 Sept 1935	31 Oct 1934	31 Oct 1933	31 Oct 1935	30 Sept 1935	31 Oct 1934	31 Oct 1933
Winter wheat . . . . .	64	74	59	64	60,400	69,800	51,300	69,500
Spring wheat . . . . .	80	87	73	84	6,900	7,500	9,400	12,500
Rye . . . . .	68	76	64	64	113,200	126,600	106,100	121,800
Winter barley . . . . .	47	58	40	46	10,400	12,800	6,100	7,200
Spring barley . . . . .	70	81	71	70	36,400	42,100	39,300	42,500
Oats . . . . .	81	90	82	84	95,900	106,600	98,600	128,800

AUTHORITY: Marktiberschlelle beim Reichsnährstand (The absolute figures are calculated by the I. I. A.)

## Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
WHEAT:					
Grain . . . . .	29,983	31,112	27,617	35,614	21,852
Flour for bread . . . . .	2,520	2,538	3,221	2,789	3,009
TOTAL 1) . . . . .	33,484	34,637	32,090	39,488	26,032
RYE:					
Grain . . . . .	25,164	28,027	25,578	22,340	17,835
Flour for bread . . . . .	1,625	1,616	1,956	2,378	1,799
TOTAL 1) . . . . .	27,554	30,404	28,453	25,764	20,481
BARLEY . . . . .	4,098	5,245	4,180	5,439	4,749
OATS . . . . .	3,880	3,887	3,206	1,217	1,678

1) Including flour in terms of grain, on the basis of the coefficient 1,000 centals of wheat flour = 1,388 89 centals of wheat, 1,000 centals of rye flour = 1 470 59 centals of rye

## Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
WHEAT:					
Grain . . . . .	3,120	3,024	3,888	7,584	9,048
Flour as grain . . . . .	624	528	600	792	1,008
TOTAL . . . . .	3,744	3,552	4,488	8,376	10,056
BARLEY . . . . .	1,520	1,040	780	1,120	1,340
OATS . . . . .	192	256	272	256	352
MAIZE . . . . .	2,448	2,736	2,832	3,888	2,760

1) Imported cereals.

AUTHORITY: Broomhall's Corn Trade News.

## Stocks of wheat in Italy.

LOCATION	Last day of month				
	August 1935	July 1935	June 1935	May 1935	August 1934
	1,000 centals				
Wheat destined for sale by holding pools ("ammassi collettivi"): . . . . .					
in collective granaries 1) . . . . .	14,729	8,144	0	9	6,349
in granaries of producers or other persons . . . . .	1,146	381	0	2	933
Total . . . . .	15,875	8,525	0	11	7,282
Wheat in general stores and in free zones 2) . . . . .	7,222	6,665	1,942	2,414	8,455
Wheat in bond in the chief entrepot centres 4) . . . . .	1,673	1,614	1,451	1,709	432
Wheat in mills and attached elevators 3) . . . . .	(5)	(5)	1,925	3,014	12,229
GRAND TOTAL . . . . .	5) 24,770	5) 16,804	5,318	7,148	28,398

1) Including a small quantity of wheat belonging to holding pools which is stored in general stores. — 2) Not including quantities belonging to holding pools; see previous note. — 3) Provisional figures referring to mills which have a daily capacity of not less than 40 metric quintals — 4) Provisional figure. — 5) The figures of wheat in mills will be published only after complete revision of the method of collecting used until June 1935.

## Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
<b>WHEAT:</b>					
Antwerp . . . . .	1,546	902	420	2,650	1,642
Rotterdam . . . . .	954	512	179	1,436	2,635
Amsterdam . . . . .	12	12	12	29	26
<b>RYE:</b>					
Antwerp . . . . .	27	36	38	160	208
Rotterdam . . . . .	88	61	119	172	134
Amsterdam . . . . .	1	0	0	0	2
<b>BARLEY:</b>					
Antwerp . . . . .	316	180	213	30	226
Rotterdam . . . . .	309	18	30	192	992
Amsterdam . . . . .	2	1	5	13	91
<b>OATS:</b>					
Antwerp . . . . .	15	28	90	93	9
Rotterdam . . . . .	0	3	0	76	14
Amsterdam . . . . .	25	27	32	28	26
<b>MAIZE:</b>					
Antwerp . . . . .	158	101	44	311	42
Rotterdam . . . . .	138	220	66	551	99
Amsterdam . . . . .	5	4	15	124	40

1) Imported cereals. See note on p. 306 of the *Crop Report* of April 1934. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Sino-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

## STOCKS OF COTTON

## Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	October 1935	September 1935	August 1935	October 1934	October 1933
	1,000 centals				
In consuming establishments . . . . .	5,224	3,486	3,135	5,543	6,716
In public storage and at compresses . . .	41,280	34,790	28,678	45,656	46,715
<b>TOTAL . . .</b>	<b>46,504</b>	<b>38,276</b>	<b>31,813</b>	<b>51,199</b>	<b>53,431</b>

## Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
Bombay 1) . . . . .	1,532	1,804	2,152	2,436	2,256
Alexandria 2) . . . . .	1,305	773	3) 438	1,947	2,628

1) Stocks held by exporters, dealers and mills. — 2) From February 1934 quantities consumed in Alexandria or returned to the interior of the country are not included, prior to that date quantities returned to the interior are included. — 3) Figure corrected after a revision of the stocks of Ashmuni Zagora cotton which, at the end of the season, were 160,000 centals instead of 95,000 centals. See table p 734

AUTHORITIES: *East Indian Cotton Ass* and *Commission de la Bourse de Mout-el-Bassal*.

## Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
<b>Great Britain:</b>					
American . . . . .	880	643	704	1,306	2,095
Argentine, Brazilian, etc. . . . .	106	184	179	1,039	186
Peruvian, etc. . . . .	314	330	347	574	463
East Indian, etc. . . . .	119	148	239	280	199
Egyptian, Sudanese . . . . .	712	848	868	1,181	820
W. Indian, W. and E African, Australian	65	89	126	286	250
<b>TOTAL . . .</b>	<b>2,196</b>	<b>2,242</b>	<b>2,463</b>	<b>4,666</b>	<b>4,013</b>
<b>Bremen:</b>					
American . . . . .	492	437	539	1,404	2,140
Other . . . . .	309	320	433	281	100
<b>TOTAL . . .</b>	<b>801</b>	<b>757</b>	<b>972</b>	<b>1,685</b>	<b>2,240</b>
<b>Le Havre:</b>					
American . . . . .	272	236	233	580	919
French colonies . . . . .	15	20	17	30	28
Other . . . . .	71	85	88	93	64
<b>TOTAL . . .</b>	<b>358</b>	<b>341</b>	<b>338</b>	<b>703</b>	<b>1,011</b>
<b>Total Continent 1):</b>					
American . . . . .	1,039	955	1,147	2,371	3,988
Argentine, Brazilian, etc. . . . .	280	284	282	131	59
E Indian, Australian, etc. . . . .	131	164	217	208	117
Egyptian . . . . .	130	110	173	116	129
W. Indian, W African E African, etc	135	131	196	255	101
<b>TOTAL . . .</b>	<b>1,715</b>	<b>1,644</b>	<b>2,015</b>	<b>3,081</b>	<b>4,394</b>

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Ass* and (for Le Havre) *Bulletin de correspondance de la Bourse du Havre*.

## WEEKLY PRICES BY PRODUCTS

(All quotations are, unless otherwise stated, spot. The monthly averages are based on the weekly quotations, and the annual on the monthly.)

DESCRIPTION	15	8	1	25	AVERAGE					Commercial Season 1)	
	Nov	Nov.	Nov.	Oct.	Oct	Nov.	Nov				
	1935	1935	1935	1935	1935	1934	1933	1934-35	1933-34		
Wheat.											
Budapest: Tisza wheat, 78 kg. p. hl. (pengo p. quintal) . . . . .	18 50	18.37	18.20	18.15	17.86	16.28	7.63	16.67	9.70		
Braila: Good quality (lei p. quintal) . .	450	480	440	430	415	n. q.	342	* 420	* 357		
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	86 1/2	84 7/8	85 7/8	88 7/8	91 7/8	79 3/4	64 3/4	81 7/8	67 1/2		
Chicago: No. 2 Hard Winter (cents p 60 lb.)	112 1/2	n. 111 1/4	116	118 1/4	122 1/2	n. 106	n. 88 1/2	104 1/4	89 1/2		
Minneapolis: No. 1 Northern (cents p. 60 lb.) 2)	130	126 3/4	129	132 3/8	135 3/8	110 3/8	87 1/2	110 3/8	89 3/8		
New York: No. 2 Hard Winter (cents p. 60 lb.)	125 1/4	127 3/4	130 1/4	134 1/4	138 1/4	114 3/4	98	113 1/4	98 3/4		
Buenos Aires (a): Barletta, 80 kg. p. hectol. (paper pesos p. quintal) . . . . .	7.75	8.30	8.60	8.95	9.01	6.30	5.46	6.86	5.85		
Karachi: Karachi white, 2% barley, 1 1/2 % impurities (rupees p. 656 lb.) . . . .	25-8-0	25-11-0	26-7-0	26-2-0	25-13-0	21-4-5	22-14-0	22-5-9	22-2-4		
Berlin: Home grown (free at Branden- burg stations; Rm. p. quintal) 3)	20.00	20.00	20.00	19 80	19.80	20.00	18.30	20.29	18.65		
Hamburg (c i f; Rm. p. quintal):											
No. 2 Manitoba 4)	9.45	9 54	9 62	9 83	10.21	8.94	7 58	8.95	7.94		
Barusso 3)	7.85	8.02	8.19	8.35	8.46	6.16	6.70	6.50	6.22		
Antwerp (francs p. quintal):											
Home-grown . . . . .	91.00	93.00	94.00	93.00	92.25	62.80	58.00	69.10	63.00		
No. 1 Manitoba (Atlantic) (in bond) .	111.50	112 00	115 50	115 00	117.00	75.05	68.05	86.10	67.65		
Barusso (in bond) . . . . .	96.00	99.50	100 50	100.00	101.75	50.90	55.75	60.90	53.00		
Paris: Home-grown (delivery regional depots; 76 kg. p. hl.; frs. p. quintal) 6)	80.00	80.00	81.00	81 00	81 40	112.00	122.00	91.50	125.65		
London: Home grown (sh. p. 504 lb.) 7)	25/6	26/-	26 60	27/6	27/9 1/2	21/9	20/-	22/4 1/2	20/10		
Liverpool and London (c i f, parcels, ship- ping current month; sh. p. 480 lb.)											
French (on sample) . . . . .	23/-	23/6	25/-	n. q.	n. q.	19/4 1/2	n. q.	19/8 1/2	n. q.		
South Russian (on sample) . . . . .	n. 28/7 1/2	29/6	29/4 1/2	30/1 1/2	30/5 1/2	n. q.	18/0 1/2	n. q.	* 19/5 1/2		
No. 1 Northern Manitoba (Atlantic) .	32/9	32/8 1/4	33 4 1/2	34/-	34/11 1/2	30/7 1/2	24/9 1/2	31/7 1/2	26/9		
No. 1 Northern Manitoba (Pacific) . .	32/3	32/4 1/2	33 -	34/-	34/10 1/2	30/0 1/2	25/2 1/2	31/2 1/2	26/7		
No. 3 Northern Manitoba (Pacific) . .	29/4 1/2	29/4 1/2	30/5 1/2	31/3	32/4 1/2	27/3 1/2	23/2 1/2	28/5 1/2	24/5 1/2		
White Pacific. . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	22/3 1/2	n. q.	* 20/5		
Rosafé (afloat) 8) . . . . .	26/4 1/2	26/9	27/-	n. 30/1 1/2	30/9 1/2	20/7 1/2	19/2 1/2	22/3 1/2	19/5 1/2		
West Australian (cargoes) . . . . .	28/6	29/-	30/6	n. q.	n. q.	24/9 1/2	n. q.	26/3 1/2	* 23 10 1/2		
New South Wales (cargoes) . . . . .	28/-	29/6	n. q.	30/3	30/11	22/9 1/2	n. q.	* 25/7	* 24/-		
Milan (b): Home-grown, soft, Buono mer- cantile • 76-78 kg. p. hl. (lire p. q.) .	111.50	111.50	110.50	110.50	110 25	89 35	* 79.35	95 80	83.85		
Genoa: Sicilian Durum (c.i.f., lire p. quint.)	n. q.	n. q.	n. q.	n. q.	n. q.	108 90	106.75	* 113.05	107.85		
Genoa (c.i.f.; U. S. \$ p. quintal):											
No. 2 Manitoba (Pacific) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	3 20	n. q.	* 3.38	* 2.87		
No. 2 Canadian Durum 9) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	* 4 14	2 96	* 4.09	* 3.11		
Bahia Blanca, 79 kg. p. hl. (sh p. 1000 kg.)	n. q.	n. q.	n. q.	n. q.	n. q.	103/10	n. q.	* 11/-	* 93/6		
Rye.											
Berlin: Home-grown (free at Branden- burg stations; Rm. p. quintal) 3) . .	16.30	16.30	16.30	16.10	16.10	16.00	14 80	16.29	15.34		
Hamburg (c.i.f.; Rm. p. quintal): Plata, 72-73 kg p. hl. . . . .	4.89	5.15	5.15	5.23	5.28	5.79	4.85	5.76	4.76		
Budapest: Pest rye (pengo p. quintal) . .	16.15	15.95	15.85	15.75	15.51	12.10	3 99	12.08	5.24		
Warsaw: Good quality (zloty p. quint.) .	13.37	13.37	13 37	13 37	13/12	14 25	14.50	14.82	14.32		
Winnipeg: No. 2 (cents p. 56 lb.) . . .	42 1/4	40 1/4	39 1/4	39 1/4	42 1/4	55 1/2	42 1/4	52 1/4	47 1/4		
Minneapolis: No. 2 (cents p. 56 lb.) . .	49 1/4	49 1/4	49 3/4	50 1/4	52 1/4	75 1/4	61 1/4	67 1/4	63		
Groningen (c): Home-grown (fl. p. quint.)	6.67	6.50	6.57	6.72	6.72	7.20	6.61	7.35	6.65		

\* Indicates that the product during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal.  
— a) Thursday prices — b) Saturday prices. — c) Prices of preceding Tuesday.

1) August-July — 2) From 9 Aug. 1935, No. 1 Dark Northern Spring. — 3) 1 Oct. 1933-15 Aug. 1934, for wheat, and 1 Oct. 1933-15 July 1934, for rye: minimum prices; subsequently, fixed producers' prices for the price region of Berlin city. See *Government Measures*, No. 2, p. 57. — 4) From Nov. 1934, No. 1 Manitoba. — 5) Year 1933, 79 kg. p. hl.; subsequently, 80 kg. — 6) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations. For the regulations on milling see *Government Measures*, No. 2, pp. 69-73. — 7) From Aug. 1933, prices on the farm. — 8) Aug.-Oct. 1933, 63 1/2 lb p bushel; Nov.-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 1/2 lb. — 9) From Dec. 1934, No. 1. Can. Dur. — 10) 18 Oct. (revised) 133 1/4. — 11) Price on 31 Oct. — 12) Shipping Dec. — 13) New crop, shipping Jan.-Feb. — 14) New crop, shipping Dec. — 15) Shipping November



DESCRIPTION	15	8	1	25	AVERAGE				
	Nov.	Nov.	Nov.	Oct.	Oct.	Nov.	Nov.	Commercial	
	1935	1935	1935	1935	1935	1934	1933	Season 1)	
								1934-35	1933-34
<b>Barley.</b>									
Warsaw: Malting, good quality (zloty p. quintal) . . . . .	16.62	16.62	16.75	17.00	17.00	20.25	15.50	* 19.60	* 15.87
Bralla: Average quality (lei p. quintal) . . . . .	250	250	260	255	255	254	132	* 246	* 154
Prague: Malting, av. qual. (crs. p. quintal) 2) . . . . .	129.50	129.50	129.50	128.00	128.00	129.50	85.10	* 131.70	* 94.20
Winnipeg: No. 4 Western (cents p. 48 lb.) . . . . .	32	32 1/8	30 3/8	29 1/8	31 7/8	48 1/8	33 1/8	45 5/8	36 7/8
Chicago: Feeding (on sample; cents p. 48 lb.) . . . . .	43	42	46	48	46 1/8	n. 83	49 1/8	72 1/8	54
Minneapolis: No. 2 Feeding (c. p. 48 lb.) . . . . .	40	39	39	39	40	75 7/8	42 1/8	67 1/8	45 1/8
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3) 4) . . . . .	16.60	16.60	16.60	16.40	16.40	15.90	16.52	16.16	* 16.17
Antwerp: Danubian (in bond; francs p. q.) . . . . .	70.00	71.00	72.00	72.00	73.85	69.00	46.85	69.45	49.35
London: English malting, best quality (sh. p. 448 lb.) 5) . . . . .	42/-	43/-	43/-	43/-	43/-	41/6	41/3	38/-	* 39/5
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	12/7 1/2	* 19/2 1/2	* 13/9 1/2
Russian (Azof, Black Sea) . . . . .	14/2 1/4	14/3	14/4 1/4	14/4 1/4	15/3 1/4	n. q.	12/8 1/4	n. q.	* 13/7 1/4
Canadian No. 3 Western . . . . .	16/5 1/4	16/-	16/-	16/-	16/9 1/4	22/7 1/4	15/8 1/4	21/10 1/4	17/9 1/4
Californian malting (sh. p. 448 lb.) . . . . .	*) 23/6	*) 24/3	*) 24/6	*) 24/6	*) 25/4 1/4	n. q.	* 26/3	* 31/6	22/7 1/4
Plata (64-65 kg. p. hl) . . . . .	15/3	15/2 1/4	14/9	15/-	15/9	*) 18/8	13/4	18/4	14/2 1/4
Persian . . . . .	*) 14/6	*) 14/6	*) 15/-	*) 15/-	*) 15/6 1/4	20/4 1/4	n. q.	18/6	* 14/0 1/4
Groningen a): Home grown, winter (fl.p.q.) . . . . .	4.65	4.65	4.60	4.75	4.83	5.60	3.71	5.30	4.44
<b>Oats.</b>									
Bralla: Good quality (lei p. quintal) . . . . .	315	315	315	310	310	n. q.	128	n. q.	* 148
Winnipeg: No. 2 White (cents per 34 lb) . . . . .	32 1/4	32 3/4	32 1/8	33 3/8	34 1/4	44 1/4	30 3/4	42 3/4	33 3/8
Chicago: No. 2 White (cents per 32 lb) . . . . .	32 1/8	30	31	31	32 1/2	55 7/8	35 1/8	50 7/8	37 1/8
Buenos Aires b): Current quality (paper pesos p. quintal) . . . . .	n. q.	6.70	6.30	6.50	6.63	5.04	3.63	5.39	3.65
Berlin: Home grown (free at Brandenburg stations; Rm. p. quint.) 3) . . . . .	16.20	16.20	16.20	16.00	16.00	16.10	14.42	16.39	14.92
Paris: Home grown, black and other (delivery regional depots; frs.p. quintal) . . . . .	56.90	56.40	*) 53.75	54.00	53.25	53.05	48.55	48.50	48.00
London: Home grown white (sh.p. 336 lb.) 5) . . . . .	17/9	18/6	19/-	19/6	19/6	20/3 1/4	17/-	20/10	18/1 1/4
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):									
Canadian, No. 2 Western (Pacific) 6) . . . . .	17/10 1/4	17/9 3/4	17/9	17/9	18/4 3/4	20/8 3/4	n. q.	20/10 1/4	* 17/4
Plata (f. a. q.) . . . . .	*) 13/6	*) 12/7 1/4	*) 12/9	16/9	17/2 1/4	*) 12/3 1/4	11/2 1/4	13/0 1/4	10/2
Milan (c) (lire p. quintal):									
Home grown . . . . .	98.00	98.00	98.00	99.00	99.00	57.50	48.00	61.25	50.70
Foreign . . . . .	93.50	n. 93.50	93.50	93.50	93.00	58.75	* 47.65	60.45	50.05
<b>Maize.</b>									
Bralla: Average quality (lei p. quintal) . . . . .	210	210	220	190	217	182	195	* 223	* 173
Chicago: No. 3 Yellow (cents p. 56 lb.) . . . . .	*) 65 1/8	*) 63 1/8	*) 62 1/8	73	83 1/4	86	43 1/4	78 1/8	46 7/8
Buenos Aires (b): Yellow Plata (paper pesos p. quintal) . . . . .	4.40	4.40	4.40	4.40	4.53	6.06	3.82	5.72	4.26
Antwerp (in bond; francs p. quintal):									
Yellow Plata . . . . .	53.00	53.50	54.00	55.00	56.10	51.70	48.00	53.70	48.35
Cinquantino (Argentine "Cuarentino") . . . . .	57.00	57.50	61.00	61.00	62.00	58.70	57.85	58.25	58.00
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):									
Danubian . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	20/5 1/4	17/6	* 20/-	16/9 1/4
Yellow Plata . . . . .	15/5 1/4	15/6	15/9	16/-	16/8 1/4	20/5 1/4	16/9	19/8 1/4	16/7
No. 2 White flat African . . . . .	n. 16/3	16/6	17/-	17/6	17/6 1/4	22/3 1/4	n. q.	21/4 1/4	n. q.
Milan (c): « Alto Milanese » (lire p. quint.) . . . . .	85.00	84.00	81.00	81.00	80.60	50.75	* 44.00	58.50	58.80

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Prices of preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. From August 1935, good quality, not less than 68 kg. per hectoliter — 3) From 16 July 1934 for fodder barley, and from 1 August 1934 for oats, fixed producers' prices for the price region of Berlin city. See *Government Measures*, N° 2, p. 57.

4) Sept. 1933-June 1934, spring barley, average quality. — 5) From Aug. 1933, prices on the farm. — 6) June-Dec. 1934 and from May 1935, Atlantic. — 7) New crop; shipping Jan.-Feb. — 8) Price on 31 October. — 9) New crop.

DESCRIPTION	15	8	1	25	AVERAGE				Commercial	
	Nov.	Nov.	Nov.	Oct.	Oct.	Nov.	Nov.	Season 1)		
	1935	1935	1935	1935	1935	1934	1933	1934	1933	
Rice (milled).										
Valencia (a): No. 3 Belloch (pesetas p. quintal) . . . . .	56.50	56.50	56.50	56.50	55.70	52.90	46.10	46.95	43.10	
Milan (b) (lire p. quintal):										
Vialone, oiled . . . . .	194.00	190.50	186.00	172.00	161.85	149.50	* 176.65	177.10	198.20	
Maratelli, oiled . . . . .	160.50	165.00	159.00	151.50	144.60	127.50	* 130.15	138.05	139.90	
Orignario, white . . . . .	133.50	133.00	130.00	130.00	127.85	99.50	* 86.35	102.80	95.50	
Rangoon: No. 2 Burma (rupees p. 7500 lb.)	275	270	270	282 1/2	277 1/2	229	206 1/2	201 1/2	194 1/2	
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % broken . . . . .	...	...	...	4.46	4.54	3.47	3.14	3.25	4.08	
No. 2 Japan, 40 % broken . . . . .	...	...	...	4.12	4.22	3.29	2.96	3.09	3.90	
Marseilles (a): No. 1 Saigon (c. i. f.; frs. p. quintal) . . . . .	75.00	80.00	60.00	62.00	63.80	47.40	46.40	45.95	53.10	
London (a) (c. i. f.; shillings p. cwt.):										
No. 3 Spanish Belloch, oiled . . . . .	11/10 1/2	13/6	13/6	n. q.	* 12/4 1/2	11/-	13/6	* 10/9	12/5 1/2	
No. 6 Italian good, oiled . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	12/7 1/2	9/3 1/2	11/10 1/2	11/2 1/2	
American Blue Rose, extra fancy . . . . .	16/6	16/6	16/6	16/6	15/4 1/2	16/10 1/2	17/1 1/2	17/3 1/2	16/9 1/2	
No. 2 Rangoon or Bassein (Burma) . . . . .	*) 7/4 1/2	*) 7/6	*) 7/9	8/9 3/4	8/6	*) 6/11 1/2	*) 6/5 1/2	6/7 1/2	6/6 1/2	
No. 1 Saigon . . . . .	*) 7/7 1/2	8/3	8/1 1/2	8/1 1/2	8/3	7/-	*) 5/10	6/3 1/2	6/9 1/2	
Siam Super, white . . . . .	*) 8/6	*) 8/7 1/2	9/4 1/2	9/10 1/2	9/10 1/2	7/8 1/2	*) 7/3 1/2	7/5	8/1 1/2	
Tokyo. Chumai (brown Japanese, average quality, yen p. koku) . . . . .	30.30	30.70	31.10	31.20	31.32	30.00	* 22.53	26.09	21.62	
Linseed.										
Buenos Aires (a): Current quality (paper pesos p. quintal) . . . . .	12.50	12.70	12.90	12.90	13.30	11.61	10.40	12.74	10.56	
Antwerp. Plate (in bond; frs. p. quint.)	143.50	145.00	147.00	148.00	151.60	98.00	109.00	107.60	111.70	
London (c. i. f.; t. p. long ton):										
Plate (delivery Hull) . . . . .	9-18-9	10-0-0	10-3-9	10-3-9	10-12-6	9-7-6	9-14-1	10-0-8	9-11-11	
Bombay bold . . . . .	12-13-9	12-15-0	12-17-6	13-0-0	13-3-5	11-4-6	11-8-5	11-17-0	11-5-4	
Duluth: No. 1 Northern (quotations of terminal market; cents p. 56 lb.) . . . . .	*) 173	*) 172 1/2	*) 172 1/2	*) 173 1/2	*) 174 1/2	*) 180 1/2	*) 174 1/2	186 1/2	156 1/2	
Cotton seed.										
Alexandria (piastres p. ardeb):								1934-35	1933-34	
Upper Egypt . . . . .	62.4	60.3	59.9	60.9	63.7	* 56.2	39.5	62.0	41.8	
Sakellaris . . . . .	58.3	56.4	56.9	57.9	60.6	52.3	36.1	57.7	* 37.5	
London Sakellaris (c. i. f., delivery Hull; t. p. long ton) . . . . .	n. 6-2-6	n. 5-8-3	n. 5-9-6	n. 6-0-0	n. 6-11-3	5-7-9	4-2-10	5-18-7	4-5-11	
Cotton.										
New Orleans: Middling (cents p. lb.) . . . . .	12.30	11.68	11.45	11.25	11.16	12.59	9.78	12.47	10.90	
New York: Middling (cents p. lb.) . . . . .	12.35	11.70	11.40	11.30	11.27	12.54	10.04	12.46	11.07	
Bombay: M. g. Broach f. g. (terminal market quotations; rup. p. 784 lb.) . . . . .	*) 229	*) 217	*) 215	*) 214	*) 215 1/2	*) 215 1/2	184	230 1/2	197	
Alexandria (talaris p. kantar):										
Sakellaris, f. g. f. . . . .	17.35	16.80	16.30	16.20	15.12	15.60	12.57	15.20	14.44	
Ashmuni-Zagora, t. g. f. . . . .	13.52	13.07	12.57	12.27	12.20	13.17	9.97	13.34	11.63	
Bremen: Middling (U. S. cents p. lb.) . . . . .	15.45	13.78	13.66	13.53	13.39	14.51	11.22	14.38	12.56	
M. g. Broach, f. g. (pence p. lb.) . . . . .	n. 6.70	n. 6.50	n. 6.50	n. 6.50	n. 6.41	n. 5.54	n. 4.35	n. 6.04	n. 4.81	
Le Havre: Middling (Gulf, frs p. 50 kg.) . . . . .	255.00	243.50	n. q.	236.50	235.10	253.20	204.50	250.75	229.85	
Liverpool (pence per lb.):										
Middling, fair . . . . .	n. 7.77	n. 7.47	n. 7.45	n. 7.47	n. 7.49	n. 7.92	n. 6.34	n. 7.95	n. 7.11	
Middling . . . . .	6.77	6.47	6.45	6.47	6.49	6.87	5.24	6.94	6.02	
Sao Paulo, g. f. . . . .	7.12	6.82	6.75	6.77	6.74	6.81	5.54	6.99	6.13	
C. P. Oomse, superfine . . . . .	6.19	5.91	5.85	5.82	5.74	5.21	4.46	5.73	4.92	
M. g. Broach, f. g. . . . .	6.06	5.78	5.72	5.69	5.65	5.29	n. 4.14	5.61	4.62	
Egyptian Sakellaris, f. g. f. . . . .	9.77	9.57	9.28	9.11	8.84	8.78	7.07	8.52	8.07	
Upper Egyptian, f. g. f. . . . .	7.45	7.28	6.97	6.94	7.10	7.39	5.85	7.55	6.64	

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal.  
— a) Thursday prices. — b) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Price of 12 Oct. (revised): 277 1/2. — 3) 18 Oct.: 4.51; 11 Oct. 4.55; 4 Oct. 4.65. — 4) 18 Oct. 4.20, 11 Oct. 4.23, 4 Oct. 4.35. — 5) New crop. — 6) Shipping Jan.-Feb., new crop. — 7) Shipping Feb.-March, new crop. — 8) December futures — 9) April-May futures.

DESCRIPTION	15 Nov. 1933	8 Nov. 1933	1 Nov. 1933	25 Oct. 1933	AVERAGE				
					Oct. 1933	Nov 1934	Nov. 1933	Commercial Season	
								1934	1933
<b>Bacon.</b>									
London, Provision Exchange (a) (shill. p. cwt.):									
English, No 1, lean sizable. . . . .	83/6	84/6	87/-	88/6	92/-	87/9	83/3	91/2	..
Danish, No 1, sizable. . . . .	86/-	89/-	89/-	89/-	92/-	85/9	77/-	87/11	74/5
Irish, No 1, sizable. . . . .	82/6	85/-	88/-	88/-	91/6	86/1	79/10	90/5	83/4
Lithuanian, No 1, sizable. . . . .	79/-	81/-	82/-	84/-	88/6	82/-	67/9	82/-	65/5
Dutch, No 1, sizable. . . . .	82/-	84/-	86/-	86/-	90/3	84/-	69/3	84/-	67/6
Polish, No 1, sizable. . . . .	77/-	79/-	80/-	82/-	86/6	81/-	66/-	80/11	63/10
Swedish, No 1, sizable. . . . .	82/-	84/-	86/-	86/-	90/3	83/2	73/10	84/4	70/-
Canadian, No 1, sizable. . . . .	75/-	77/-	79/-	82/-	86/6	80/5	67/6	80/3	64/6
<b>Butter.</b>									
Copenhagen (b): Danish (crs. p. quint.) . .	220.00	220.00	220.00	230.00	232 40	209.20	201.20	160.75	171.00
Leeuwarden, Comm for butter quota- tions (b): Dutch (cents p.kg.) 1) . .	60	60	63	68	65	46 1/2	64 1/2	44 1/2	60
Germany (c) (fixed prices; Rm. p. 50 Kg.) 2):									
Butter with quality mark. . . . .	130.00	130.00	130.00	130.00	130.00	130 50	129.33	129 04	112.72
Creamery butter. . . . .	123.00	123.00	123.00	123.00	123.00	122.50	123.00	120 87	106.25
London (d): English creamery, finest qua- lity (shillings p. cwt.) . . . . .	130/8	130/8	140/-	144/8	140/11	109/8	139/1	109/6	140/10
London, Provision Exchange (a) (shill. p. cwt.):									
Danish creamery, unsalted. . . . .	124/6	124/-	124/6	130/-	131/9	120/5	117/2	98/8	103/9
Estonian, unsalted. . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. 74/-	89/4	* 67/11	* 84/4
Latvian, unsalted. . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	71/3	89/8	* 69/3	* 82/9
Dutch creamery, unsalted. . . . .	109/-	106/6	112/6	123/-	115/7	87/5	113/7	80/4	103/4
Argentine, finest, unsalted. . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	89/-	* 68/3	* 77/10
Siberian, salted. . . . .	98/-	97/-	102/-	113/-	* 113/10	70/4	74/3	* 66/-	* 73/5
Australian, finest, salted. . . . .	101/6	100/-	105/-	113/-	119/-	73/-	80/1	70/2	80/-
New Zealand, finest, salted. . . . .	102/6	100/6	105/6	113/-	119/4	74/-	81/5	72/7	81/1
<b>Cheese.</b>									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, pro- duction 1933 3) . . . . .	735.00	740.00	740.00	740 00	758.75	749.00	1,050.00	724 30	* 989.00
Parmigiano-Reggiano, 1st quality, production 1934 3) . . . . .	690.00	690.00	690.00	695.00	701 25	621 00	865 00	614 60	806.00
Green Gorgonzola, mature, choice. . . .	540.00	550.00	550.00	550.00	562 50	416.00	425.00	412 60	473.70
Rome: Roman Pecorino, choice (lire p. q)	* 1,175.00	* 1,175.00	* 1,125.00	* 1,125 00	* 1,095 00	681 00	781 25	658.65	1,023.00
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese-mark) factory cheese, small (florins p. 50 kg.) . . . .	17.50	18.00	20 00	21.00	22.75	20.00	23 00	20.98	22.40
Gouda: Gouda 45 + (whole milk cheese, with the country's cheese-mark) home made (florins p. 50 kg.) . . . . .	25 00	25.00	25.50	26 00	27 00	23 40	27.87	22 52	26.59
Kempten (c) (Rpf p. 1/2 kg.):									
Soft cheese, green, 20 % butterfat. . .	26	26	26	26	26	26	23 1/2	23 1/2	20 1/2
Emmenthal from the Allgäu, whole milk cheese, 1st quality. . . . .	77	77	77	77	77	73	71	71 1/2	72 1/2
London, Provision Exchange (a) (shill. p. cwt.):									
English Cheddar, finest farmers. . . .	75/-	68/-	68/-	67/-	65/6	85/-	88/5	* 83/5	86/3
English Cheshire, Nat. Mark Selected. .	91/-	88/8	88/8	86/4	80/9	87/6	120/8	83/4	94/4
Italian Gorgonzola (d). . . . .	105/-	109/8	109/8	109/8	110/2	84/-	81/1	82/9	85/3
Dutch Edam, 40 + (d). . . . .	53/-	52/6	57/-	59/-	61/10	48/-	72/4	54/5	59/8
Canadian, finest white. . . . .	58/-	57/-	59/-	60/-	60/4	54/6	51/2	54/-	59/8
New Zealand, finest white. . . . .	51/6	50/-	52/6	58/-	59/11	51/4	49/6	46/5	46/10

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n = nominal —  
a) Average prices of Thursday, and Friday morning. — b) Thursday prices. — c) Wednesday prices. — d) Average prices for the week.

1) Home prices are increased by a consumption-duty which was, on 15 Nov. fl. 0.95 — 2) See note on page 306 of the *Crop Report* of April 1934. — 3) Prices of 1933-cheese are compared for the preceding year with those of cheese made in 1932 and in 1931 respectively; prices of 1934-cheese with those of cheese made in 1933 and 1932. The yearly averages refer to periods from Sept. to August. — 4) New make.

DESCRIPTION	15	8	1	25	AVERAGE				
	Nov.	Nov.	Nov.	Oct.	Oct.	Nov.	Nov.	Commercial	
	1935	1935	1935	1935				Season 1)	
					1935	1934	1933	1934	1933
<b>Eggs.</b>									
Antwerp, auction: Belgian, average qual. (frs. p. 100) . . . . .	76.00	78.00	*) 75.00	82.00	77.00	67.20	77.75	42.80	48.40
Denmark (a): Danish for export (crs. per quintal) . . . . .	176.00	176.00	176.00	176.00	*) 156.00	192.50	172.00	103.60	105.85
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100) 2):									
Fixed price for export into Germany . . . . .	...	...	...	...	...	5.58	5.82	3.96	3.48
Price for other destinations . . . . .	...	...	...	...	...	4.90	5.82	3.34	3.48
Warsaw (b): Polish, average weight 50 gr. each, different colours (zloty p. 1440, including box) . . . . .	135.00	133.83	128.00	128.00	123.00	130.00	147.50	106.50	123.60
Berlin (c): German, big, new laid (Rm. p. 100):									
marked «GIS», 65 gr. each . . . . .	11.50	11.50	11.50	11.50	11.50	12.00	14.00	10.37	10.41
marked «GIB», 55/60 gr. each. . . . .	10.00	10.00	10.00	10.00	10.00	11.00	13.06	9.03	9.05
London, Egg Exchange (d) (sh. p. great hundred):									
English, National mark, specials . . . . .	24/-	24/6	23/6	21/-	19/9 1/4	23/6	23/-	15/5	15/10 1/4
Belgian, 75 1/2 lb. p. 120 . . . . .	13/-	13/-	10/1 1/2	n. q.	*11/8	n. q.	*15/10	*11/0 1/4	*11/1
Danish, 18 lb. p. 120 . . . . .	17/7 1/2	16/3	15/9	16/-	14/8	17/8 1/4	19/9 1/2	12/5 1/4	12/9 1/4
Northern Irish, 18 lb. p. 120 . . . . .	22/6	24/-	24/-	19/6	19/4 1/4	n. q.	*23/7 1/2	*12/9 1/4	15/1
Dutch, all brown, 18 lb. p. 120 . . . . .	18/1 1/2	n. q.	18/1 1/4	17/9	16/9	n. 19/7 1/2	n. q.	13/5	*14/10 1/4
Polish, 51/54 grams each 3) . . . . .	8/6	8/3	8/4 1/2	8/7 1/2	8/2	8/1 1/2	*8/3	6/10 1/4	*7/4 1/4
Chinese, violet . . . . .	9/1 1/2	9/4 1/2	9/4 1/2	9/7 1/2	9/5 1/4	8/8 1/4	9/3 1/4	*8/3 1/4	*9/10
Australian, 16 lb. p. 120 . . . . .	11/10 1/2	12/4 1/2	12/7 1/2	13/1 1/2	12/9	12/5 1/4	12/8 1/2	*11/5 1/4	*12/4 1/2
<b>Maritime freights</b> (RATES FOR ENTIRE CARGOES).									
								1934-25	1933-34
<b>Shipments of Wheat and Maize.</b>									
Danube to Antwerp/Hamburg. (shill. per Black Sea to Antwerp/Hamb. } long ton)	n. q. 11/3	n. q. 11/3	n. q. 11/-	n. q. 11/-	n. q. 10/6	n. 13/10 3/4 n. 10/6	14/10 1/2 10/6	*13/11 *9/11	*14/1 10/3
St. John to Liverpool 4) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*1/6	*1/11
Port Churchill to United Kingdom . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*2/9	*2/9
Montreal to United Kingdom. (shill. per Gulf to United Kingdom 4). } 480 lb.)	n. 2/6 2/6	*) n. 2/6 2/6	*) 2/3 2/6	*) 2/3 2/6	n. q. 2/6	n. q. 2/6	n. q. 2/6	*1/6 1/4 2/6	*1/4 1/4 2/6 1/4
New York to Liverpool 4) . . . . .	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6
Northern Range to U.K./Cont. . . . .	2/-	2/-	2/-	2/-	2/-	n. q.	n. q.	n. q.	*1/9
North Pacific to United Kingdom (sh. per long ton) . . . . .	20/6	20/6	22/-	22/-	20/4 1/4	n. q.	n. 19/6	*18/1 1/2	*20/1
Vancouver to Yokohama 4) (U.S.A. \$ p. short ton) 5) . . . . .	...	...	...	...	...	2.80	2.50	...	2.41
La Plata Down River 6) /Bahia Blanca to U.K./Continent . . . . .	n. q.	n. q.	n. q.	10) 16/6	10) *16/6	14/3 1/2	14/1 1/2	14/11	14/1
La Plata Up River 7) /Necochea to U.K./Continent . . . . .	10) 17/9	10) 17/9	10) 17/9	10) 17/9	10) 17/9	16/2 1/4	16/5	16/2	15/9
Western Australia to U.K./Continent . . . . .	27/6	27/6	27/6	27/6	26/3 1/2	26/8 1/4	n. 24/4 1/2	24/6	23/10 1/4
<b>Shipments of Rice.</b>									
								1934	1933
Saigon to Europe . . . . . (shill. per Burma to U.K./Continent . . } long ton)	25/9 n. q.	25/9 n. q.	25/6 n. q.	25/6 n. q.	25/- n. q.	26/4 1/2 n. q.	23/10 1/2 n. q.	24/2 1/4 *23/3	23/5 1/4 *23/1 1/4

\* Indicates that the product, or the maritime freight, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Average prices for weeks commencing on Fridays indicated. — b) Average prices for weeks commencing on preceding Mondays. — c) Prices Thursday to Saturday of each week. — d) Prices of preceding Monday.

1) Shipments of wheat and maize: Aug. — July. — 2) See note on p. 307 of the *Crop Report* of April 1934. — 3) From Nov. 1933, 51/52 grams each. — 4) Rates for parcels by liners. — 5) May-Oct. 1934 and from 25 Jan. 1935, Canadian \$. 6) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 7) "Up River" includes the ports on the Paraná River as far as San Lorenzo, Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 8) Price on 31 Oct. — 9) Price from 18 to 24 Oct.: 166.00. — 10) Minimum rates.

## EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1)

NATIONAL CURRENCIES	Exchange rates				Percentage bonus (+) or loss (—)			
	15 Nov. 1935	8 Nov. 1935	1 Nov. 1935	25 Oct. 1935	15 Nov. 1935	8 Nov. 1935	1 Nov. 1935	25 Oct. 1935
Germany: free reichsmark. . . . .	123.650	123.675	123.650	123.650	+ 0.2	+ 0.2	+ 0.2	+ 0.2
Argentina: paper peso †) 2) . . . . .	100.880	100.900	100.833	100.867	— 54.1	— 54.1	— 54.2	— 54.2
Belgium: belga. . . . .	52.000	51.900	51.775	51.775	+ 0.2	0.0	— 0.2	— 0.2
Canada: dollar . . . . .	3.040	3.045	3.040	3.035	— 41.3	— 41.3	— 41.3	— 41.4
Denmark: crown . . . . .	67.625	67.450	67.525	67.550	— 51.3	— 51.4	— 51.4	— 51.4
Spain: peseta . . . . .	41.975	42.000	42.000	42.025	— 58.0	— 58.0	— 58.0	— 58.0
Egypt: pound 3) . . . . .	15.132	15.135	15.125	15.130	— 40.0	— 40.0	— 40.0	— 40.0
United Kingdom: pound sterling . . . . .	3.075	3.075	3.074	3.075	+ 0.5	+ 0.5	+ 0.4	+ 0.5
United States: dollar . . . . .	20.260	20.265	20.270	20.285	— 0.2	— 0.2	— 0.2	— 0.1
France: franc . . . . .	56.000	55.950	56.250	56.500	— 38.2	— 38.3	— 37.9	— 37.7
Indo-China: piaster 4) . . . . .	114.747	114.269	114.194	114.231	— 39.6	— 39.6	— 39.6	— 39.6
Hungary: pengő 5) . . . . .	24.950	25.225	25.000	25.000	— 8.5	— 7.5	— 8.3	— 8.3
India: rupee †) . . . . .	88.648	88.666	88.607	88.647	— 65.7	— 65.7	— 65.7	— 65.7
Italy: lira . . . . .	208.850	208.850	208.875	208.650	+ 0.3	+ 0.3	+ 0.3	+ 0.2
Japan: yen †) . . . . .	57.900	57.900	57.900	57.900	— 0.4	— 0.4	— 0.4	— 0.4
Netherlands: florin . . . . .	1.525	1.525	1.525	1.600	— 50.8	— 50.8	— 50.8	— 48.4
Poland: zloty . . . . .	78.025	77.950	77.975	77.975	— 43.8	— 43.9	— 43.9	— 43.9
Rumania: leu . . . . .	12.715	12.715	12.705	12.725	— 0.6	— 0.6	— 0.7	— 0.6
Sweden: crown . . . . .								
Czechoslovakia: crown . . . . .								

1) The exchange rate represents the value of 100 units of the national currency (one unit for the dollar and the pound sterling) expressed as far as possible in Swiss francs on the Zurich Exchange. With regard to the currencies marked thus † a conversion has been made, the original exchange rates on London being converted into Swiss francs by means of the rate of the £ in Zurich. — 2) Fixed exchange rates — 3) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 4) As the relation between the Indo Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given — 5) Bank notes

## VARIATIONS IN THE INDEX-NUMBERS OF PRICES

On the following pages the index-numbers of prices of agricultural products and other price-indices, of interest to the farmer, are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

*Percentage variations in the index-numbers for October 1935.*

COUNTRIES	Comparison with September 1935		Comparison with October 1934	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index numbers of wholesale prices in general
Germany . . . . .	+ 0.5	+ 0.5	+ 3.3	+ 1.8
England and Wales . . . . .	— 6.3	+ 0.8	— 0.8	+ 5.9
Argentina . . . . .	+ 2.9	—	+ 7.9	—
Canada . . . . .	+ 1.7	+ 1.1	+ 8.0	+ 2.3
United States: Bur. of Agric. Economics . . . . .	+ 1.9	—	+ 6.9	—
United States: Bur. of Labor . . . . .	— 1.6	...	+ 10.8	...
Finland . . . . .	+ 2.6	+ 1.1	+ 6.5	+ 2.2
Hungary . . . . .	+ 6.1	+ 3.3	+ 24.3	+ 15.8
Italy . . . . .	...	+ 1.0	...	+ 23.2
New Zealand . . . . .	+ 7.8	—	+ 11.5	—
Netherlands . . . . .	+ 3.9	+ 4.1	+ 1.9	+ 1.3
Poland . . . . .	+ 0.2	+ 0.5	+ 2.2	+ 0.2
Yugoslavia:				
plant products . . . . .	+ 4.5	+ 3.2	+ 38.8	+ 10.1
livestock products . . . . .	+ 4.8		— 3.8	

# **INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER <sup>1)</sup>**

DESCRIPTION	Oct. 1935	Sept. 1935	August 1935	July 1935	June 1935	May 1935	Oct. 1934	Oct. 1933	Year	
									1934	1933
<b>Germany</b>										
(Statistisches Reichsamt, 1913 = 100).										
Foodstuffs of plant origin . . . . .	111.0	110.7	114.5	116.2	115.0	114.5	112.2	98.9	108.7	98.7
Livestock . . . . .	91.5	90.4	88.6	85.9	83.2	80.6	79.3	72.3	70.9	64.3
Livestock products . . . . .	110.2	110.0	109.6	105.5	103.4	103.3	109.1	109.5	105.0	97.5
Feeding stuffs . . . . .	103.9	103.4	103.7	103.8	104.6	104.6	105.1	90.8	102.0	86.4
Total agricultural products . . . . .	104.2	103.7	104.3	103.1	101.5	100.6	100.9	92.7	95.9	86.8
Fertilizers <sup>2)</sup> . . . . .	67.0	66.7	65.9	64.9	65.7	65.7	68.6	71.1	68.7	70.2
Agricultural dead stock . . . . .	111.1	111.1	111.1	111.1	111.1	111.1	111.2	112.1	111.1	111.6
Finished manufactures ("Konsumgüter")	123.9	123.8	124.1	123.9	123.8	123.9	120.8	113.7	117.3	111.7
Wholesale products in general . . . . .	102.8	102.3	102.4	101.8	101.2	100.8	101.0	95.7	98.4	93.3
<b>England and Wales</b>										
(Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products <sup>3)</sup> . . . . .	120	128	120	120	117	117	121	112	119	111
Feeding stuffs . . . . .	86	81	80	83	86	88	98	78	91	85
Fertilizers . . . . .	88	88	88	89	89	89	88	88	90	90
Wholesale products in general <sup>4)</sup> . . . . .	100.9	100.1	98.9	99.2	98.5	100.2	95.3	94.7	96.3	93.7
<b>Argentina</b>										
(Banco de la Nación Argentina) 1926 = 100.										
Cereals and linseed . . . . .	72.1	70.7	64.3	62.5	63.5	64.8	71.8	49.8	68.1	54.4
Meat . . . . .	90.9	91.5	88.6	84.7	80.0	77.8	81.2	70.4	78.5	65.9
Hides and skins . . . . .	91.9	80.0	76.3	75.2	77.3	80.7	67.5	60.6	71.6	63.9
Wool . . . . .	84.5	79.9	78.7	75.4	69.2	70.0	80.4	56.9	84.3	54.6
Dairy products . . . . .	113.4	120.2	104.6	100.5	82.6	75.8	68.4	58.7	62.3	57.4
Forest products . . . . .	94.9	91.5	91.8	91.8	90.4	92.8	70.2	71.3	75.1	72.5
Total agricultural products . . . . .	78.7	76.5	71.0	68.8	68.3	69.2	72.9	54.3	70.5	56.9
<b>Canada</b>										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100										
Field products (grain, etc.) . . . . .	59.3	58.3	55.5	55.7	55.1	58.0	55.3	44.1	53.8	45.7
Livestock and livestock products . . . . .	76.7	75.5	72.4	71.1	72.0	74.4	70.4	63.0	67.7	59.6
Total Canadian farm products . . . . .	65.8	64.7	61.8	61.5	61.4	64.1	60.9	51.2	59.0	51.0
Fertilizers . . . . .	75.8	75.8	75.8	75.8	75.8	75.8	75.8	78.4	75.9	73.8
Consumers' goods (other than foodstuffs, beverages and tobacco) . . . . .	75.3	75.0	75.4	75.3	75.7	75.6	76.9	77.1	77.0	76.0
Wholesale products in general . . . . .	73.1	72.3	71.6	71.5	71.5	72.3	71.4	67.9	71.6	67.2

<sup>1)</sup> For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696).  
<sup>2)</sup> Revised series from October 1934. — <sup>3)</sup> Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments. — <sup>4)</sup> Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	Oct.	Sept.	August	July	June	May	Oct	Oct.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>United States</b> (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals . . . . .	101	97	96	96	102	112	109	69	93	62
Cotton and cottonseed . . . . .	94	90	97	102	103	105	107	71	99	64
Fruits . . . . .	82	82	87	98	100	98	98	77	100	74
Truck crops (market garden crops) . . . . .	120	101	92	93	96	127	110	123	102	105
Meat animals . . . . .	125	131	129	116	119	118	74	64	68	60
Dairy products . . . . .	104	102	98	97	99	107	100	91	96	82
Chickens and eggs . . . . .	132	126	111	107	108	110	108	93	89	75
Miscellaneous . . . . .	103	96	102	85	86	89	137	93	108	83
Total agricultural products . . . . .	109	107	106	102	104	108	102	78	90	70
Commodities purchased 1) . . . . .	123	125	126	126	127	127	126	116	122	109
Agricultural wages 1) . . . . .	—	102	—	99	—	—	93	86	88	80
<b>United States</b> (Bureau of Labor) 1926 = 100.										
Cereals . . . . .	86.4	83.5	79.3	78.3	76.9	83.2	85.0	58.2	74.5	53.1
Livestock and poultry . . . . .	86.6	92.0	91.6	82.8	84.8	87.6	55.3	45.4	51.5	43.4
Other farm products . . . . .	70.3	70.4	71.4	72.9	74.3	75.0	75.4	61.2	70.5	55.8
Total agricultural products . . . . .	78.2	79.5	79.3	77.1	78.3	80.6	70.6	55.7	65.3	51.4
Agricultural implements . . . . .	93.7	93.7	93.6	93.6	93.6	93.6	92.0	83.7	89.6	83.5
Fertilizer materials . . . . .	67.2	67.2	66.8	65.7	65.7	65.9	65.7	67.6	67.1	65.9
Mixed fertilizers . . . . .	67.9	67.8	68.1	68.6	74.5	73.1	73.0	68.3	72.5	64.5
Cattle feed . . . . .	71.6	67.9	71.3	78.6	92.2	107.0	97.6	60.4	89.4	57.9
Non-agricultural commodities . . . . .	...	80.8	80.6	79.8	80.0	80.0	77.6	74.4	76.9	69.0
Wholesale products in general . . . . .	...	80.7	80.5	79.4	78.9	80.2	76.5	71.2	74.9	65.9
<b>Finland</b> (Central Bureau of Statistics) 1926 = 100.										
Cereals . . . . .	84	77	78	79	79	79	81	81	82	88
Potatoes . . . . .	59	65	83	89	88	84	51	42	49	77
Fodder . . . . .	60	59	55	68	67	66	63	78	72	72
Meat . . . . .	71	77	81	79	72	71	70	58	71	64
Dairy products . . . . .	90	85	84	82	77	75	80	86	75	75
Total agricultural products . . . . .	79	77	77	78	75	74	74	74	73	74
Wholesale products in general . . . . .	92	91	90	90	90	90	90	90	90	89
<b>Hungary</b> (Central Bureau Statistics) 1913 = 100.										
Agricultural and livestock products . . . . .	87	82	79	79	75	77	70	54	—	—
Wholesale products in general . . . . .	95	92	89	90	87	86	82	71	—	—
<b>Italy</b> (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products . . . . .	...	...	379.6	357.4	359.6	335.1	313.4	272.5	297.9	280.7
Wholesale products in general . . . . .	340.7	337.4	329.2	319.1	314.5	304.4	276.4	277.0	275.8	283.4
<b>New Zealand</b> (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products . . . . .	111.4	97.6	90.8	88.7	79.5	80.2	75.1	95.6	77.5	84.0
Meat . . . . .	150.2	151.0	148.0	151.5	150.2	152.8	151.8	126.8	152.2	120.7
Wool . . . . .	92.0	80.4	85.1	84.4	84.8	77.5	104.1	73.8	110.0	69.8
Other pastoral products . . . . .	112.5	107.9	100.7	100.7	98.5	84.5	77.1	95.0	80.2	74.5
All pastoral and dairy products . . . . .	117.6	108.7	105.3	105.2	100.6	99.1	101.7	97.4	104.5	88.4
Field products . . . . .	125.6	125.4	126.3	124.5	124.7	124.8	120.4	117.8	120.6	115.8
Total agricultural products . . . . .	117.8	109.2	106.0	105.8	101.3	99.9	102.0	97.9	104.7	89.2

1) 1910-1914 = 100.

Description	Oct.	Sept	Aug.	July	June	May	Oct.	Oct.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934-35 2)	1933-34 2)
<b>Norway</b>										
(Kegl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals . . . . .	143	142	143	148	145	143	139	119	126	112
Potatoes. . . . .	139	132	168	240	257	175	117	90	132	103
Pork. . . . .	118	113	107	93	94	90	87	86	83	81
Other meat. . . . .	143	148	161	150	138	142	137	103	137	110
Eggs. . . . .	132	103	99	79	75	67	129	99	92	85
Dairy products. . . . .	140	140	139	139	138	137	132	129	132	126
Concentrated feeding stuffs . . . . .	129	126	125	126	111	113	117	96	109	96
Maize. . . . .	118	116	114	115	95	99	114	81	101	83
Fertilizers. . . . .	83	83	83	78	78	78	72	84	81	87
<b>Netherlands</b>										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products. . . . .	53	51	52	53	58	56	62	62	58	59
Livestock products. . . . .	53	50	48	48	48	47	48	53	49	53
Total agricultural products. . . . .	53	51	49	49	50	50	52	55	51	55
Agricultural wages . . . . .	69	69	69	69	69	69	71	74	71	74
Wholesale products in general 1). . . . .	52.8	50.7	49.4	50.1	50.7	50.7	52.1	50.7	3) 52.8	3) 50.1
<b>Poland</b>										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products . . . . .	33.7	32.5	29.6	33.1	37.2	38.9	35.6	34.4	35.6	41.1
Meat animals. . . . .	40.4	42.1	45.3	37.5	32.4	30.9	34.8	44.6	36.7	42.5
Dairy products and eggs . . . . .	45.5	43.3	40.2	38.8	37.5	36.3	39.8	47.5	41.2	46.7
Products directly sold by farmers . . . . .	38.1	37.7	36.7	35.6	35.6	35.8	36.1	40.2	37.0	42.6
Flour and groats. . . . .	36.7	35.8	34.7	33.8	36.0	38.2	40.2	39.8	38.8	47.8
Meat and lard fat . . . . .	49.2	50.2	47.3	43.1	37.1	36.0	40.2	51.2	43.5	49.8
Sugar, alcohol, beer . . . . .	79.4	79.4	79.3	79.3	79.3	79.2	85.5	90.3	88.6	90.3
Products of agricultural industries . . . . .	55.0	55.1	53.7	51.9	50.6	50.8	55.0	60.3	56.7	62.4
Total agricultural products. . . . .	46.5	46.3	45.1	43.7	43.0	43.2	45.5	50.1	46.8	52.4
Commodities purchased. . . . .	67.2	66.7	66.5	66.5	66.8	66.9	68.8	72.1	70.6	72.9
Wholesale products in general. . . . .	54.5	54.2	53.6	52.9	52.6	52.7	54.4	57.9	55.8	59.1
<b>Yugoslavia</b>										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products. . . . .	81.6	78.1	67.6	60.3	60.1	61.2	58.8	49.9	57.4	57.2
Livestock products. . . . .	56.2	53.6	53.1	55.6	58.5	56.5	58.4	57.5	55.4	57.1
Industrial products . . . . .	68.8	67.3	66.4	65.7	65.7	66.4	66.0	68.8	67.4	70.8
Wholesale products in general. . . . .	70.0	67.8	64.8	63.3	63.9	64.0	63.6	61.5	63.2	64.4

1) Calculated by the the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100 — 2) Agricultural year: Norway, 1st April-31 March; Netherlands, 1st July-30 June. — 3) Calendar year.

Prof. ALESSANDRO BRIZI, Segretario generale dell'Istituto, Direttore responsabile.

29-XI-1935.



# MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

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*The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.*

## Results of the cereal harvests.

*Wheat.* — The estimates of the last wheat harvests of the northern hemisphere received by the Institute during the course of December involve only slight alterations in the estimates previously issued and they refer only to a small number of countries.

Of the European countries, only Great Britain, Latvia and Poland have revised the provisional estimates of their crops. The first of these has increased its figure from 62.3 to 65.0 million bushels while the other two have reduced their total by 0.8 million bushels.

Denmark has issued the first estimate of its crop, indicating a larger production than that of last year, a result which was expected to follow the extension in the area under the crop.

The total figure of European production is thus slightly larger than that computed a month ago.

The United States has now published its final production figures, showing a slight increase in the outturn of both winter and spring wheat. Taken together they show an upward revision of nearly four million bushels on the provisional estimates. The final estimate of the Canadian crop will be made known in January. It appears probable that this figure will also show a moderate increase on the figure issued in November.

As regards the important exporting countries of the southern hemisphere, the first estimate of the Argentine crop is now available and a revised estimate was issued by Australia at the end of last month.

In Argentina, according to the latest information issued by the Government, not only is there a decrease in the sown area of about a quarter owing to the persistent drought which obtained during the period of cultivation and sowings, but the proportion of the sown area which has yielded no crop is larger than the average (16% as against an average of 10%); further, the yield of the harvested area (12.1 bushels per acre) is smaller than that of last year (14.0 bushels) and also below the average yield (13.1). As a result of the distinctly unfavourable weather conditions of this season, the crop, according to the first

official estimate, is even below general expectations; it reaches only 144 million bushels, compared with 241 millions last year and an average of 228 millions in the preceding five years.

The second estimate of Australian production increases the forecast made in October by 5 million bushels, as a result of the better harvest returns obtained in Victoria and South Australia.

These revisions bring about a decrease of about 20 million bushels in the total world wheat production as it was estimated a month ago.

### World Wheat Production (1).

(Million bushels).

YEARS	Europe 2)			North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R.
	Importing countries	Exporting countries	Total							
1923-27 Average . . . .	920	323	1,243	1,210	275	402	108	143	3,381	694
1928 . . . . .	976	433	1,409	1,492	399	342	116	168	3,926	807
1929 . . . . .	1,073	378	1,451	1,139	221	384	136	134	3,465	694
1930 . . . . .	917	445	1,362	1,323	273	456	115	221	3,748	989
1931 . . . . .	973	462	1,435	1,271	264	407	131	197	3,705	753
1932 . . . . .	1,213	279	1,492	1,197	286	393	140	225	3,733	742
1933 . . . . .	1,291	455	1,746	822	345	421	122	184	3,640	4) 1,018
1934 . . . . .	1,214	336	1,550	3) 790	288	431	151	140	3,350	4) 1,117
Forecast 1935 . . . . .	1,168	375	1,543	887	191	445	130	147	3,343	...

1) Not including China, Iran, Turkey and Iraq — 2) Not including U.S.S.R. — 3) Data calculated taking into account that the crop of Canada is officially considered as underestimated by nearly 6 million bushels — 4) Probably over-estimated

The variations in the forecast of the crops of the different continents have not hitherto been considerable, except in the case of Argentina; the Argentine crop, however, is appreciably smaller than it was expected to be in October when the statistical situation of the present year was examined. This element will entail modifications in the exportable surpluses which it is proposed to incorporate in a later issue of the *Crop Report*.

International wheat movements were very slight in volume in August but showed an appreciable recovery in September and October. The total is practically at the level of that of the last two years and corresponds closely to our estimate of a total world demand for the whole year of 540 million bushels.

Imports into European countries in the first three months of this season tend to be even smaller than the extremely low totals recorded in the same period last year. A weak demand is apparent not only in Continental countries but also in the British Isles and, although world export figures for this period are at the same level as those of last year, they are the outcome entirely of

*World net exports of wheat (including flour in terms of wheat).*

(Million bushels).

Months	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August . . . . .	39	49	45	41	66	77	71
September . . . . .	50	43	51	48	78	74	57
October . . . . .	51	50	46	62	74	84	60
November . . . . .	...	43	41	54	67	77	51
December . . . . .	...	38	51	60	64	59	50
January . . . . .	...	43	48	62	62	54	48
February . . . . .	...	41	44	64	73	70	45
March . . . . .	...	48	50	64	74	67	50
April . . . . .	...	42	35	40	70	62	42
May . . . . .	...	47	44	52	67	81	50
June . . . . .	...	32	45	42	59	67	51
July . . . . .	...	33	46	44	45	52	53
<i>Total August-October . .</i>	<i>140</i>	<i>142</i>	<i>142</i>	<i>151</i>	<i>218</i>	<i>235</i>	<i>188</i>
<i>Total year . . . 1) 540</i>		<i>509</i>	<i>546</i>	<i>633</i>	<i>799</i>	<i>824</i>	<i>628</i>

1) October Forecast

the demand of the non-European exporting countries, in particular, that of the United States, which during the three months, August to October, showed net imports of 10 million bushels. The figures of the net imports of the various European countries in the first quarter of this year are set out in the following table.

*Net imports of wheat into Europe (including flour in terms of wheat).*

(Million bushels)

MONTHS	Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August . . . . .	16	11	27	18	14	32
September . . . . .	15	13	28	20	16	36
October . . . . .	21	15	36	18	13	31
November . . . . .	...	...	...	17	12	29
December . . . . .	...	...	...	20	12	32
January . . . . .	...	...	...	12	10	22
February . . . . .	...	...	...	16	10	26
March . . . . .	...	...	...	20	11	31
April . . . . .	...	...	...	17	10	27
May . . . . .	...	...	...	22	10	32
June . . . . .	...	...	...	18	10	28
July . . . . .	...	...	...	19	13	32
<i>Total August-October . .</i>	<i>52</i>	<i>39</i>	<i>91</i>	<i>56</i>	<i>43</i>	<i>99</i>
<i>Total year . . . 1) 224</i>		<i>132</i>	<i>356</i>	<i>217</i>	<i>141</i>	<i>358</i>

1) October Forecast.

The first information on autumn sowings for harvest in 1936 is now reaching the Institute. It indicates that in most European countries and in the U.S.S.R., sowings were put in the ground in good conditions but in Eastern Europe sowing

was hindered by the drought, especially in Romania and Bulgaria where it is expected that a fairly appreciable contraction will result in the winter wheat area. In the British Isles, on the other hand, field operations have been delayed by the excessive rain of the autumn. On the whole, the indications are that the acreage under wheat in Europe will be about equal to that of last year.

The first estimate of the area sown to winter wheat in the United States reveals the expected slight increase in comparison with last year, sprouting was thought to have been satisfactory in the greater part of the wheat belt, rain having fallen in quantities sufficient to meet the needs of growth, in a few areas, though these are not of great extent, and on the Pacific coast germination was hindered by drought.

The situation of sowings in India is normal but, at the beginning of December, the crops were in need of rains, especially in the Punjab.

*Rye.* — The preliminary estimate for Denmark and the revisions made by Poland and Latvia in Europe and by the United States in North America result in slight increases in the preliminary estimates of the crops of the two continents. In the southern hemisphere, an extremely poor crop is reported by Argentina, which, however, produces only very modest quantities.

*World production of rye (1).*

(Million bushels)

	Europe	North America	South America	Total	U S S R
Average 1923-27	807	63	0	876	858
Year 1928	905	51	10	966	700
" 1929	941	47	5	993	803
" 1930	925	67	5	997	920
" 1931	776	39	11	826	860
" 1932	933	47	13	993	860
" 1933	1,003	25	10	1,038	952
" 1934	894	21	20	935	711
" 1935	886	60	8	953	

(1) Including U. S. S. R., China and Turkey

World rye production, excluding the crop of the U. S. S. R., is slightly larger than that of last year and practically equal to the average of the five preceding years. Production in the Soviet Union was plentiful, a figure has not yet been issued but it will probably be appreciably larger than that of 1934.

*Barley.* — The various revisions of the preliminary figures of a number of European countries show small increases, which, however, only slightly affect the total production of the Continent. Attention should be drawn to the good results experienced in Denmark as shown in the first estimate, which has just been made known, and which reveals a larger crop than was expected in this country. The European crop, on the whole, though better than it was expected to be a few months ago, is to be ranked with those of poor years. It is the smallest obtained in the last seven years, with the exception of that of 1931 which, moreover, is only slightly below it.

The good results in North America are confirmed by the final estimate of the United States.

No modification has been made in the preliminary figures of the African crop which indicated that production is very low as a result of the poor yields secured in Morocco.

In Argentina, barley is the only cereal to show an almost insignificant decline in area in the present year, but the crops have undergone serious drought damage and the outturn is barely half what it was last year.

*World production of barley (1).*

(Million bushels).

	Europe	North America	Asia	Africa	S. America and Oceania	Total	U.S.S.R.
Average 1923-27 . . . . .	643	276	266	96	37	1,318	239
Year 1928 . . . . .	744	473	234	115	37	1,603	262
» 1929 . . . . .	827	386	271	119	31	1,634	331
» 1930 . . . . .	758	441	253	96	32	1,580	312
» 1931 . . . . .	689	271	253	106	37	1,356	239
» 1932 . . . . .	776	386	257	110	55	1,584	230
» 1933 . . . . .	776	221	253	106	55	1,411	358
» 1934 . . . . .	717	184	257	133	60	1,351	312
» 1935 . . . . .	694	381	262	92	41	1,470	...

(1) Excluding U. S. S. R., China and Turkey.

Notwithstanding the slight increase brought about by the latest estimates in the total European production and the confirmation of the large North American crop, the 1935 world barley crop remains mediocre. Larger than the small crop of 1934 by 9 %, it is, nevertheless, still 3 % short of the average of the years 1929 to 1933.

*Oats.* — In the case of this cereal, the modifications in the production estimates previously known and the new estimate of Denmark do not affect the estimate of total European production as they offset each other completely. Production in 1935 is thus confirmed as mediocre, remaining slightly below that of last year and about 10 % below the average of 1929 to 1933.

With their final estimate, the United States further increased the total of the oat crop by about eleven million bushels, thus confirming a very plentiful crop. The forecast for Argentina is, on the other hand, very low, being barely half that of last year.

*World production of oats (1).*

(Million bushels of 32 lb.).

	Europe	North America	Asia and Africa	S. America and Oceania	Total	U.S.S.R.
Average 1923-27 . . . . .	1,715	1,702	41	76	3,534	779
Year 1928 . . . . .	1,881	1,798	41	96	3,816	1,135
» 1929 . . . . .	2,060	1,419	41	103	3,623	1,084
» 1930 . . . . .	1,709	1,729	48	96	3,582	1,145
» 1931 . . . . .	1,695	1,474	34	103	3,306	758
» 1932 . . . . .	1,853	1,660	34	103	3,650	772
» 1933 . . . . .	1,938	1,061	34	96	3,129	1,061
» 1934 . . . . .	1,695	868	41	103	2,707	1,302
» 1935 . . . . .	1,674	1,637	34	69	3,414	...

(1) Excluding U. S. S. R., China and Turkey.

Notwithstanding the large crop in North America, the world oat crop in 1935, excluding that of the U. S. S. R., is below average owing to the mediocre or poor results obtained in the other continents. It is appreciably larger, however, than the poor crops recorded in 1933 and 1934.

G. CAPONE.

## CEREALS

*Germany:* Crop condition on 1 December, expressed according to the method used by the country and compared with that on 1 November 1935 and on 1 December 1934 was as follows: winter wheat, 2.5 (2.5 and 2.3); winter rye, 2.5 (2.6 and 2.3); winter barley, 2.5 (2.4 and 2.4); winter spelt 2.3 (2.5 and 2.2).

*Austria:* During the first half of November the temperature was rather mild and the sky cloudy. After the middle of the month the temperature fell and there was moderate rainfall. During the third decade of the same month there was thick fog in the valleys and night frosts.

The winter cereals are growing in satisfactory conditions on the whole. On 1 December crop condition was as follows: winter wheat, 2.0 (against 2.2 on 1 November 1935 and 2.1 on 1 December 1934); winter rye, 1.9 (2.1, 1.9) and winter barley, 2.0 (1.9, 2.0).

*Bulgaria:* During November the weather was rather dry and cold, and there was rain only at the end of the month. These conditions were not at all favourable for the sowing of winter cereals and these operations were finished rather hurriedly. Following this dryness and cold the germination of the seedings was not uniform.

*Spain:* The sowing of winter cereals was done, on the whole, very late and under bad conditions because of the drought and the condition of the ground. Germination was irregular; nevertheless, helpful rains fell at the end of November, and soil moisture is now sufficient.

In several parts the acreage devoted to barley was larger, while the wheat acreage was reduced.

*Irish Free State:* The weather during November was almost continuously wet, with cold and stormy spells and some night frosts.

The bulk of the crops was already brought in and threshed. Late threshings were impeded.

Field work was greatly hampered and thrown back about a fortnight. The sowings of winter wheat were held up to the end of the month in most cases. The seedings already sown germinated satisfactorily.

*France:* The weather between 15 November and 15 December was very rainy and relatively mild, particularly between the end of November and 10 December. Frosts were few and slight. Snow fell at only a few points of the country and did not remain on the ground. The persistent rain hindered sowing, particularly in the south-west and west and in the centre where wheat was sown after roots. Moreover, the latest sowings did not sprout satisfactorily and the crops suffered to some extent from the excessive moisture. Fine dry weather set in about the 10 or 15 December, according to district. Hitherto, damage to crops has been very slight. The sprouting and growth of crops is satisfactory. It is reported, however, that in several areas the delay in work will not allow sowings to be completed and that the acreage will probably be less than it was expected to be and thus a little smaller than that of last year.

*Wheat.*

COUNTRIES	†) AREA					†) PRODUCTION							
	1935 1935/36	1934 1934/35	Average to 1933 1929/30 to 1933/34	% 1935 1935/36		1935 1935/36	1934 1934/35	Average to 1933 1929/30 to 1933/34	1935 1935/36	1934 1934/35	Average to 1933 1929/30 to 1933/34	% 1935 1935/36	
				1934 — 1935 = 100	Aver. — 100							1934 — 1935 = 100	Aver. — 100
1,000 acres					1,000 cents			1,000 bushels					
Germany	5,199	5,431	5,015	95.7	103.7	103,022	99,926	96,910	171,700	166,539	161,514	103.1	106.3
Austria	609	573	524	106.3	116.4	9,354	7,984	7,366	15,590	13,306	12,277	117.2	127.0
Belgium	386	371	381	104.1	101.3	8,267	9,681	8,487	13,779	16,134	14,144	85.4	97.4
Bulgaria	2,729	3,114	2,988	87.6	91.3	28,755	23,757	30,951	47,925	39,594	51,584	121.0	92.9
Denmark	311	280	255	111.0	122.2	8,865	7,708	6,550	14,774	12,847	10,916	115.0	135.3
Spain	11,063	11,388	11,064	97.1	99.8	92,367	112,103	90,939	153,942	186,834	151,562	82.4	101.6
Estonia	154	161	111	97.1	138.9	1,379	1,864	1,100	2,298	3,107	1,834	74.0	125.3
*Irish Free State	94	94	30	...	...	2,282	705	...	3,803	1,174	...	...	...
Finland	136	125	53	108.9	257.1	1,951	1,968	803	3,252	3,280	1,339	99.1	242.9
France	13,206	13,354	13,278	98.9	99.5	167,261	203,110	183,042	278,763	338,511	305,064	82.3	91.4
Engl. and Wales	1,772	1,759	1,364	100.7	129.9	36,355	39,155	26,795	60,592	65,259	44,658	92.8	135.7
Scotland	101	98	57	103.5	177.1	2,666	2,486	1,416	4,443	4,144	2,359	107.2	188.3
*Northern Ireland	9	9	4	104.5	220.1	...	218	92	...	363	153	...	...
Greece	2,020	1,957	1,479	103.2	136.6	18,519	15,407	9,339	30,864	25,679	15,565	120.2	198.3
Hungary	4,005	3,799	3,925	105.4	102.0	44,369	38,895	47,124	73,947	64,824	78,538	114.1	94.4
Italy	12,422	12,274	12,074	101.2	102.9	170,076	139,840	154,812	283,454	233,063	258,014	121.6	109.9
Latvia	347	351	221	98.9	157.4	3,912	4,831	2,616	6,520	8,051	4,361	81.0	149.5
Lithuania	521	514	500	101.4	104.2	5,756	6,285	5,318	9,593	10,475	8,863	91.6	108.2
Luxemburg	43	40	27	108.8	162.5	616	703	341	1,027	1,171	568	87.7	181.0
Malta	9	9	9	99.9	99.6	107	186	177	179	310	296	57.7	60.6
Norway	59	46	29	126.7	203.2	1,024	722	428	1,707	1,204	713	141.8	239.3
Netherlands	377	366	216	102.9	174.2	9,553	10,825	5,573	15,921	18,042	9,287	88.2	171.4
Poland	4,342	4,315	4,108	100.6	105.7	43,801	45,865	43,292	73,000	76,440	72,151	95.5	101.2
Portugal	...	1,344	1,267	...	...	9,540	14,814	9,206	15,900	24,690	15,342	64.4	109.6
Romania	8,496	7,610	7,535	111.7	112.8	57,864	45,933	64,853	96,438	76,553	108,086	126.0	89.2
Sweden	673	718	690	93.8	97.6	13,911	17,026	13,227	23,185	28,376	22,045	81.7	105.2
Switzerland 1)	211	211	180	100.0	117.3	4,562	4,007	3,380	7,604	6,677	5,633	113.9	135.0
Czechoslovakia 2)	2,880	2,301	2,074	103.5	114.8	37,257	30,009	32,578	62,094	50,013	54,295	124.2	114.5
Yugoslavia	5,313	5,002	5,141	106.2	103.3	43,861	40,998	50,898	73,100	68,328	84,828	107.0	86.2
Total Europe	§) 78,228	77,511	74,585	100.9	104.9	924,970	926,088	897,521	1,541,591	1,543,451	1,495,836	99.9	103.1
*U. S. S. R.	(w) 31,836	26,660	24,987	119.4	127.4	...	670,428	503,890	...	1,117,358	839,800	...	...
	(s) 60,438	60,438	58,086	...	...	...	...	...	...	...	...	...	...
Canada	24,119	23,985	25,936	100.6	93.0	164,383	165,509	212,576	273,971	275,849	354,294	99.3	77.3
United States (w)	3) 31,000 4)	32,968	37,780	94.0	82.1	259,800	243,331	343,717	433,000	405,552	572,861	106.8	75.6
(s) 18,826 4)	9,281 4)	19,841	202.8	94.9	106,866	54,826	126,547	169,777	91,377	210,912	185,808	80.5	80.5
Mexico	1,199	1,224	1,258	98.0	95.6	6,167	6,570	7,294	10,279	10,950	12,157	93.9	87.6
Total North Amer.	75,144	67,458	84,815	111.4	88.4	532,216	470,236	690,134	887,227	783,728	1,150,224	113.2	77.1
Chosen	801	789	824	101.6	97.2	5,849	5,561	5,361	9,748	9,268	8,935	105.2	109.1
India	34,485	35,992	32,516	95.8	106.1	217,818	210,874	210,112	363,029	351,456	350,187	103.3	103.7
Japan	1,626	1,589	1,280	102.3	107.0	29,233	28,597	20,187	48,721	47,660	33,645	102.2	144.8
Manchukuo	...	2,042	3,441	...	...	20,635	14,078	30,155	34,392	23,463	50,253	146.6	68.4
*Syria and Leb.	1,288	1,175	1,170	109.7	110.1	...	8,724	8,851	...	14,540	14,751	...	...
Turkey	5,482	7,625	7,231	71.9	75.8	54,058	59,828	55,900	90,094	99,711	93,165	90.4	96.7
Total Asia	§) 44,436	48,037	45,292	92.5	98.1	327,593	318,938	321,713	545,984	531,558	536,185	102.7	107.8
Algeria	4,005	4,068	3,839	98.4	104.3	18,695	26,117	18,316	31,158	43,528	30,526	71.6	102.1
*Cyrenaica	52	22	20	233.3	257.4	...	107	51	...	179	84	...	...
Egypt	1,463	1,442	1,595	101.5	91.8	25,933	22,366	26,831	43,221	37,276	44,718	115.9	96.7
Eritrea	11	15	14	75.0	78.9	66	77	32	110	129	54	85.7	203.8
*Kenya	45	44	48	104.3	94.4	...	360	313	...	601	522	...	...
French Morocco	3,210	3,018	2,885	106.4	111.3	10,673	23,752	16,767	17,787	39,586	27,944	44.9	63.7
Tripolitania	30	25	22	120.0	133.3	106	739	79	176	231	132	76.2	133.3
Tunisia	1,829	1,947	1,952	93.9	92.7	10,362	8,267	7,597	17,269	13,779	12,662	125.3	136.4
Total North Africa	10,548	10,515	10,307	100.3	103.3	65,835	80,718	69,622	109,721	134,529	116,036	81.6	94.6
Argentina	(s) 14,209 5)	18,812	19,701	75.5	72.1	86,421	144,403	136,990	144,033	240,667	228,312	59.8	63.1
(4) 11,913 4)	17,155 4)	17,459	69.4	68.2	...	...	...	...	...	...	...	...	...
*Chile	2,051	2,120	1,684	96.8	121.8	...	18,078	16,795	...	30,129	27,991	...	...
*Uruguay	1,201	1,099	1,054	109.4	114.0	...	6,403	6,224	...	10,671	10,373	...	...
Un. of South Afr.	...	1,423	1,375	...	...	10,722	9,206	6,702	17,870	15,343	11,170	116.5	160.0
Australia	11,945	12,494	15,710	95.6	76.0	84,000	80,659	110,683	140,000	134,431	184,471	104.1	75.9
*New Zealand 6)	246	231	274	106.7	89.6	...	3,659	4,979	...	5,933	8,298	...	...
GRAND TOTALS	§) 233,637	234,593	249,543	99.6	93.6	2,031,757	2,030,248	2,233,365	3,386,226	3,383,707	3,722,234	100.1	91.0

## Rye.

COUNTRIES	†) AREA					†) PRODUCTION								
	1935	1934	Average	% 1935		1935	1934	Average	1935	1934	Average	% 1935		
	—	—	1929	1935/36		—	—	1929	—	—	1929	1935/36		
	1935/36	1934/35	to 1933	1934	Aver.	1935/36	1934/35	to 1933	1935/36	1934/35	to 1933	1934	Aver.	
	1,000 acres					1,000 centals			1,000 bushels					
				1934/1935	= 100							1934/1935	= 100	
Germany . . . .	11,198	11,097	11,257	100.9	99.5	166,522	167,720	174,628	297,362	299,501	311,837	99.3	95.4	
Austria . . . .	930	943	940	98.6	99.0	12,952	12,666	12,425	23,129	22,618	22,187	102.3	104.2	
Belgium . . . .	525	528	561	99.5	93.6	10,803	12,444	12,012	19,291	22,222	21,449	86.8	89.9	
Bulgaria . . . .	433	494	570	87.7	75.9	4,350	3,605	5,524	7,767	6,438	9,865	120.6	78.7	
Denmark . . . .	391	377	346	103.7	112.9	6,290	6,048	5,317	11,232	10,801	9,495	104.0	118.3	
Spain . . . .	1,401	1,426	1,512	98.3	92.7	10,705	12,078	12,565	19,116	21,567	22,438	88.6	85.2	
Estonia . . . .	357	364	358	98.2	99.9	3,619	5,076	4,064	6,462	9,064	7,258	71.3	89.0	
*Irish Free State . . .	...	2	3	...	...	...	37	60	...	67	107	...	...	
Finland . . . .	613	609	532	100.6	115.2	7,917	8,705	7,139	14,137	15,545	12,748	90.9	110.9	
France . . . .	1,663	1,694	1,776	98.2	93.6	16,229	18,471	18,322	28,981	32,984	32,718	87.9	88.6	
Greece . . . .	185	182	162	101.6	114.1	1,698	1,381	1,105	3,031	2,466	1,974	122.9	153.6	
Hungary . . . .	1,548	1,586	1,590	97.6	97.4	14,912	13,653	16,739	26,629	24,381	29,891	109.2	89.1	
Italy . . . .	272	278	297	97.8	91.6	3,509	3,140	3,652	6,267	5,607	6,522	111.8	96.1	
Latvia . . . .	668	663	610	100.8	109.6	8,022	9,078	6,190	14,326	16,210	11,053	88.4	129.6	
Lithuania . . . .	1,236	1,225	1,194	100.9	103.5	13,562	14,745	12,186	24,219	26,331	21,761	92.0	111.3	
Luxemburg . . . .	19	19	19	98.1	99.5	256	307	258	456	548	461	83.3	99.1	
Norway . . . .	15	15	17	105.9	90.7	258	221	272	460	395	486	116.6	94.7	
Netherlands . . . .	502	463	445	108.5	112.8	8,188	11,081	8,604	14,621	19,788	15,365	73.9	95.2	
Poland . . . .	14,302	13,934	14,276	102.6	100.2	144,929	142,506	144,863	258,802	254,476	258,684	101.7	100.0	
*Portugal . . . .	...	348	401	...	...	...	2,751	2,573	...	4,913	4,595	...	...	
Romania . . . .	960	912	913	105.4	105.2	7,126	4,653	8,241	12,724	8,308	14,717	53.2	86.5	
Sweden . . . .	557	581	561	95.8	99.3	9,700	11,577	8,927	17,322	20,674	15,940	83.8	108.7	
Switzerland . . . .	35	35	47	100.0	75.0	686	695	835	1,224	1,242	1,491	98.6	82.1	
Czechoslovakia . . .	2,493	2,442	2,578	102.1	96.7	36,121	33,583	40,875	64,502	59,969	72,991	107.6	88.4	
Yugoslavia . . . .	623	613	607	101.7	102.7	4,323	4,305	4,670	7,720	7,688	8,339	100.4	92.6	
Total Europe . . . .	40,926	40,480	41,168	101.1	99.4	492,677	497,738	509,413	879,778	888,823	909,670	99.0	96.7	
*U. S. S. R. . . .	w) 58,519	w) 58,474	w) 64,626	100.1	90.5	...	443,792	494,543	...	792,488	883,114	...	...	
Canada . . . .	769	735	919	104.6	83.7	5,942	3,037	5,953	10,610	5,423	10,630	195.6	99.8	
United States . . .	3) 4,063	4) 1,942	4) 3,104	209.2	130.9	32,424	8,985	19,694	57,900	16,045	35,167	360.9	164.6	
Total North Amer. . .	4,832	2,677	4,023	180.5	120.1	38,366	12,022	25,647	68,510	21,468	45,797	319.1	149.6	
Turkey . . . .	591	602	635	98.1	93.0	6,191	5,370	6,614	11,055	9,590	11,811	115.3	93.6	
Algeria . . . .	3	3	4	82.0	76.2	14	25	23	25	45	41	55.0	60.7	
Argentina . . . .	5) 1,750	5) 2,134	5) 1,477	82.0	118.5	3,086	8,841	4,270	5,512	15,787	7,624	34.9	72.3	
	4) 583	4) 1,324	4) 819	44.1	71.2									
GRAND TOTALS . . .	46,935	45,086	46,649	104.1	100.6	540,334	523,996	545,967	964,880	935,713	974,943	103.1	99.0	



## Barley.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935 1935/36	1934 1934/35	Average 1929 to 1933 1929/30 to 1933/34	% 1935 1935/36		1935 1935/36	1934 1934/35	Average 1929 to 1933 1929/30 to 1933/34	1935 1935/36	1934 1934/35	Average 1929 to 1933 1929/30 to 1933/34	% 1935 1935/36	
				1934 1935 = 100	Aver. = 100							1934 1934/35 = 100	Aver. = 100
1,000 acres					1,000 centals			1,000 bushels					
Germany . . .	3,966	4,030	3,876	98.4	102.3	73,970	70,634	69,410	154,107	147,156	144,607	104.7	106.6
Austria . . .	402	412	416	97.6	96.5	5,992	6,498	5,998	12,484	13,539	12,497	92.2	99.9
Belgium . . .	99	93	83	107.3	119.9	2,425	2,325	1,919	5,052	4,843	3,998	104.3	126.4
Bulgaria . . .	501	566	602	88.5	83.1	6,211	4,133	7,184	12,941	8,610	14,966	150.3	86.5
Denmark . . .	851	841	890	101.2	95.5	24,229	21,072	22,436	50,478	43,900	46,743	115.0	108.0
Spain . . . .	4,536	4,752	4,629	95.5	98.0	43,712	62,145	50,358	91,068	129,471	104,914	70.3	86.8
Estonia . . .	258	257	272	100.5	95.1	2,112	2,533	2,480	4,401	5,277	5,167	83.4	85.2
*Irish Free State	...	143	114	...	...	...	3,254	2,588	...	6,779	5,391	...	...
Finland . . .	329	325	298	101.1	110.3	3,816	4,600	3,653	7,951	9,583	7,611	83.0	104.5
France . . . .	1,795	1,810	1,834	99.2	97.9	23,658	22,797	24,221	49,288	47,496	50,461	103.8	97.7
Engl and Wales	792	861	976	92.0	81.1	14,694	16,285	17,499	30,613	33,927	36,456	90.2	84.0
Scotland . . .	77	96	85	80.0	90.9	1,702	2,016	1,761	3,547	4,200	3,668	84.4	96.7
*Northern Ireland	3	2	2	127.6	192.5	...	57	35	...	118	74	...	...
Greece . . . .	544	526	508	103.3	107.1	5,049	4,316	3,759	10,518	8,992	7,831	117.0	134.3
Hungary . . .	1,181	1,181	1,167	100.1	101.3	12,680	11,992	14,640	26,418	24,983	30,501	105.7	86.6
Italy . . . . .	481	491	546	98.0	88.0	4,410	4,472	5,386	9,187	9,318	11,221	98.6	81.9
Latvia . . . .	477	445	451	107.2	105.8	4,511	4,801	4,297	9,398	10,001	8,953	94.0	105.0
Lithuania . .	507	503	495	100.7	102.4	5,317	5,598	5,210	11,076	11,663	10,855	95.0	102.0
Luxemburg . .	6	6	10	99.4	66.1	86	89	129	179	185	268	96.7	66.9
Malta 7) . . .	5	5	6	94.6	75.4	65	114	133	136	238	277	57.2	49.3
Norway . . . .	153	147	137	104.3	112.1	2,818	2,547	2,274	5,870	5,307	4,738	110.6	123.9
Netherlands . .	98	80	64	123.1	154.1	2,555	2,182	1,643	5,323	4,546	3,422	117.1	155.6
Poland . . . .	3,018	2,909	3,033	103.8	99.5	32,505	32,025	32,788	67,720	66,719	68,309	101.5	99.1
*Portugal . . .	...	124	183	...	...	...	972	949	...	2,024	1,977	...	...
Romania . . .	4,079	4,332	4,720	94.2	86.4	20,367	19,210	43,553	42,431	40,021	90,737	106.0	46.8
Sweden . . . .	258	247	303	104.5	85.0	4,632	4,756	5,068	9,650	9,908	10,559	97.4	91.4
Switzerland . .	14	14	18	100.0	78.9	223	224	280	465	467	583	99.6	79.7
Czechoslovakia	1,594	1,632	1,735	97.7	91.9	23,400	22,804	28,849	48,752	47,510	60,104	102.6	81.1
Yugoslavia . .	1,044	1,042	1,056	100.1	98.8	8,279	9,038	9,095	17,248	18,829	18,948	91.6	91.0
Total Europe .	27,065	27,603	28,210	98.0	95.9	329,418	339,206	364,023	686,301	706,689	758,394	97.1	90.5
Canada . . . .	3,886	3,612	4,538	107.6	85.6	42,006	30,596	43,103	87,512	63,742	89,798	137.3	97.5
United States .	3) 12,858 4)	7,095 4)	12,194	181.2	105.4	140,160	56,807	119,079	292,000	118,348	248,081	246.7	117.7
Total North Amer	16,744	10,707	16,732	156.4	100.1	182,166	87,403	162,182	379,512	182,090	337,879	208.4	112.3
Chosen . . . .	2,549	2,179	2,403	117.0	106.0	25,960	23,097	20,455	54,085	48,120	42,616	112.4	126.9
Japan . . . . .	1,919	1,860	2,088	103.2	91.9	37,732	35,139	36,771	78,610	73,207	76,607	107.4	102.6
*Syria and Leb	715	611	810	117.0	88.3	...	5,351	8,032	...	11,148	16,734	...	...
Turkey . . . .	...	3,977	3,435	...	...	28,468	36,856	33,552	59,310	76,785	69,901	77.2	84.8
Total Asia . .	§) 8,445	8,016	7,926	105.3	106.5	92,160	95,092	90,778	192,005	198,112	189,124	96.9	101.5
Algeria . . . .	3,047	3,131	3,431	97.3	88.8	15,432	21,482	16,569	32,151	44,755	34,519	71.8	93.1
*Cyrenaica . .	151	110	84	137.4	178.8	...	292	264	...	608	551	...	...
Egypt . . . . .	281	284	342	98.7	82.1	5,021	4,336	5,200	10,461	9,033	10,834	115.8	96.6
Eritrea . . . .	62	47	53	132.6	115.7	276	251	280	574	524	583	109.6	98.4
French Morocco	3,988	3,844	3,344	103.8	119.3	12,782	33,516	23,174	26,631	69,826	48,279	38.1	55.2
Tripolitania . .	272	247	282	110.0	96.5	1,213	661	650	1,378	1,355	183.3	186.4	190.5
Tunisia . . . .	1,532	1,186	1,221	129.2	125.4	8,819	3,307	4,630	18,372	6,890	9,645	266.7	86.2
Total Africa .	9,182	8,739	8,673	105.1	105.9	43,543	63,553	50,503	90,715	132,406	105,215	68.5	86.2
*Argentina . .	15) 1,940 5)	2,014 5)	1,530	96.3	126.8	10,582	19,533	11,116	22,047	40,695	23,159	54.2	95.2
*Chile . . . .	14) 1,287 4)	1,677 4)	1,054	76.8	122.2	...	1,826	2,461	...	3,803	5,127	...	...
*Uruguay . . .	161	147	163	109.2	98.6	...	148	80	...	308	166	...	...
*New Zealand 6)	33	23	12	141.5	272.0	...	...	...	...	...	...	...	...
GRAND TOTALS .	§) 62,723	56,742	62,595	110.5	100.2	657,869	604,787	678,602	1,370,580	1,259,992	1,413,771	108.8	96.9

## Oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1935	1934	Average	% 1935		1935	1934	Average	1935	1934	Average	% 1935	
	—	—	1929	1935/36		—	—	1929	—	—	1929	1935	
	1935/36	1934/35	to 193	1934	Aver.	1935/36	1934/35	to 1933	1935/36	1934/35	to 1933	1934	Aver.
			1929/30	1934/	= 100			to 1933/34			to 1933/34	1934/	= 100
	1,000 acres					1,000 centals				1,000 bushels			
Germany . . . .	6,902	7,773	8,317	88.8	83.0	118,390	120,204	144,830	369,967	375,634	452,591	98.5	81.7
Austria . . . .	742	748	759	99.2	97.7	9,196	10,285	9,155	28,736	32,141	28,610	89.4	100.4
Belgium . . . .	710	726	720	97.8	98.7	14,771	17,781	15,853	46,159	55,566	49,539	83.1	93.2
Bulgaria . . . .	268	317	328	84.5	81.8	2,041	1,642	2,559	6,379	5,133	7,997	124.3	79.8
Denmark . . . .	909	943	960	96.3	94.6	23,043	21,766	22,132	72,008	68,019	69,163	105.9	104.1
Spain . . . . .	1,619	1,932	1,917	83.8	84.5	11,904	16,578	15,083	37,200	51,807	47,133	71.8	78.9
Estonia . . . .	342	341	361	100.4	94.8	3,030	3,518	3,163	9,467	10,994	9,885	86.1	95.8
*Irish Free State . . . .	...	583	640	...	...	...	12,564	13,860	...	39,262	43,312	...	...
Finland . . . .	1,171	1,173	1,106	99.9	105.9	14,140	17,115	13,720	44,189	53,485	42,875	82.6	103.1
France . . . . .	8,202	8,210	8,444	99.9	97.1	101,596	96,660	108,686	317,484	302,060	339,642	105.1	93.5
Engl. and Wales . . . .	1,418	1,402	1,672	101.2	84.8	25,491	24,998	29,474	79,660	78,120	92,106	102.0	86.5
*Northern Ireland . . . .	826	816	862	101.2	95.9	15,254	14,448	15,519	47,670	45,150	48,496	105.6	98.3
Scotland . . . .	273	280	296	97.5	92.1	...	6,143	6,011	...	19,198	18,783	...	...
Greece . . . . .	358	336	322	106.7	111.2	2,822	2,172	2,012	8,818	6,787	6,289	129.9	140.2
Hungary . . . . .	553	552	619	100.1	89.3	4,893	5,718	6,787	15,291	17,689	21,210	85.6	72.1
Italy . . . . .	1,047	1,049	1,182	99.9	88.6	11,558	10,803	13,164	35,495	33,758	41,137	105.1	86.3
Latvia . . . . .	822	742	779	110.8	105.5	8,508	8,567	7,399	26,587	26,770	23,123	99.3	115.0
Lithuania . . . .	824	812	891	101.5	92.5	8,769	8,372	8,612	27,404	26,163	26,911	104.7	101.8
Luxemburg . . . .	67	67	72	100.0	92.7	1,010	1,002	1,012	3,156	3,133	3,164	100.7	99.8
Norway . . . . .	215	226	238	95.3	90.4	3,824	3,887	3,904	11,949	12,146	12,201	98.4	97.9
Netherlands . . . .	320	323	364	99.1	87.7	5,785	6,337	6,728	18,078	19,803	21,024	91.3	86.0
Poland . . . . .	5,525	5,412	5,424	100.7	101.9	56,853	56,234	55,927	177,663	175,730	174,770	101.1	101.7
*Portugal . . . . .	...	402	431	...	...	...	2,461	1,898	...	7,691	5,932	...	...
Romania . . . . .	1,970	2,044	2,369	96.4	83.2	13,089	12,418	20,438	40,904	38,806	63,867	105.4	64.0
Russia . . . . .	1,657	1,628	1,618	101.8	102.5	26,676	27,147	25,007	83,362	84,835	78,146	98.3	106.7
Switzerland . . . .	25	25	45	100.0	55.0	460	449	806	1,439	1,404	2,517	102.4	57.1
Czechoslovakia . . . .	1,898	1,936	2,041	98.1	93.0	22,644	25,992	32,044	70,763	81,224	100,136	87.1	70.7
Yugoslavia . . . .	919	916	928	100.3	99.0	6,126	7,351	6,794	19,144	22,972	21,231	83.3	90.2
<b>Total Europe . . .</b>	<b>39,309</b>	<b>40,449</b>	<b>42,338</b>	<b>97.2</b>	<b>92.8</b>	<b>511,673</b>	<b>521,444</b>	<b>570,808</b>	<b>1,598,972</b>	<b>1,629,509</b>	<b>1,783,763</b>	<b>98.1</b>	<b>89.6</b>
Canada . . . . .	14,097	13,731	13,051	102.7	108.0	141,565	109,181	117,865	442,392	341,190	368,327	129.7	120.1
United States . . .	3) 39,714 4)	30,172 4)	39,201	131.6	101.3	382,400	168,284	352,048	1,195,000	525,889	1,100,151	227.2	108.6
<b>Total North Amer.</b>	<b>53,811</b>	<b>43,903</b>	<b>52,252</b>	<b>122.6</b>	<b>103.0</b>	<b>523,965</b>	<b>277,465</b>	<b>469,913</b>	<b>1,637,392</b>	<b>867,079</b>	<b>1,468,478</b>	<b>188.8</b>	<b>111.5</b>
*Syria and Lebanon . .	30	32	29	93.7	104.7	...	318	246	...	994	768	...	...
Turkey . . . . .	...	449	390	...	...	5,664	3,501	3,275	17,699	10,939	10,234	161.8	172.9
Algeria . . . . .	440	450	554	97.8	79.4	2,756	3,804	3,710	8,612	11,889	11,594	72.4	74.3
French Morocco . . .	72	66	83	109.2	86.6	439	606	677	1,371	1,894	2,115	72.4	64.8
*Tunisia . . . . .	74	86	86	85.7	85.9	...	441	666	...	1,378	2,081	...	...
<b>Total Africa . . .</b>	<b>512</b>	<b>516</b>	<b>637</b>	<b>99.0</b>	<b>80.5</b>	<b>3,195</b>	<b>4,410</b>	<b>4,387</b>	<b>9,983</b>	<b>13,783</b>	<b>13,709</b>	<b>72.4</b>	<b>72.8</b>
Argentina . . . . .	5) 2,953 5)	3,529 5)	3,672	83.7	80.4	11,023	21,385	21,071	34,447	66,827	65,846	51.5	52.3
*Chile . . . . .	14) 1,386 4)	2,200 4)	2,022	63.0	68.6	...	1,511	2,221	...	4,723	6,941	...	...
*Uruguay . . . . .	244	189	243	129.0	100.3	...	710	791	...	2,219	2,470	...	...
*New Zealand 6) . .	236	193	163	122.4	144.8	...	...	...	...	...	...	...	...
<b>GRAND TOTALS . .</b>	<b>95,467</b>	<b>87,517</b>	<b>97,639</b>	<b>109.1</b>	<b>97.8</b>	<b>1,055,520</b>	<b>828,205</b>	<b>1,069,454</b>	<b>3,298,493</b>	<b>2,588,137</b>	<b>3,342,030</b>	<b>127.4</b>	<b>98.7</b>

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — \*) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — r) Including spelt and meslin. — a) Including spelt. — g) Area expected to be harvested. — 4) Area harvested. — 5) Area sown. — 6) The area figures include also those for feeding and ensilage. — 7) Barley and meslin.

According to the preliminary estimate, area cultivated to millet this year was about 37,600 acres against 32,700 in 1934 and 37,700 on the average of the five years ending 1933; percentages, 115.0 and 99.9. The corresponding production is estimated at about 338,000 centals against 234,500 and 270,000; percentages, 144.3 and 125.3.

Area cultivated to buckwheat this year was about 740,000 acres against 759,000 in 1934 and 787,000 on the average of the five years ending 1933; percentages, 97.4 and 94.0. The corresponding production is estimated at about 6,628,000 centals against 7,243,000 and 7,665,000; percentages, 91.5 and 86.5.

*Great Britain and Northern Ireland:* The weather during November was generally unfavourable for agricultural operations. Excessive rainfall, accompanied by strong winds approaching gale force at times, was experienced over the whole country. Except for a few frosts in the middle of the fourth week of the month, mild conditions prevailed throughout November.

Autumn cultivation and sowing were practically impossible except on light land, and in many districts the low lying areas have been flooded. Owing to these conditions, all work on the land is not so forward as usual and at the end of November considerable areas still remained to be sown. Unless weather conditions improve soon it is thought that the acreage under winter wheat will be smaller.

The early sown wheat crops have, however, germinated well and the brairds were generally vigorous and healthy.

The December estimates of the production of wheat, barley and oats both in England and Wales and in Scotland (see Tables) all show upward revisions of the figures issued in the previous month.

The results of the wheat threshings in Northern Ireland gave satisfaction in most instances and yields in the main will exceed the average, although they are below the average recorded for the 1934 season. The threshing of oats was pushed forward during the spells of favourable weather and fair progress was made. The yields in most instances have given satisfaction and were above the average, while the quality of the grain is mostly good. The barley threshings were very good and the yields should be well up to average dimensions.

*Hungary:* During the four weeks from 16 November to 14 December the weather was very variable. Temperature was relatively high and rain frequent and abundant. Towards the end of this period there were falls of snow.

The early sowings, with the exception of those in several provinces of the Great Plain, were covered with snow when they were already vigorous. The weaker sowings have improved slightly, owing to the mild, and moist weather. The late sowings are rather weak and uneven. Winter barley, which had yellowed, is, as result of the favourable rains, again developing vigorously.

*Latvia:* November was characterised by an extreme drought. During the last decade of the month snow fell for the first time, but it only remained a few days. During the first fortnight the temperature was above normal and during the second fortnight there were slight frosts.

The acreage sown with winter cereals this autumn has been reduced and it is estimated that in the case of rye the reduction is equivalent to 10 % and in the case of wheat to 18 %, compared with the figures for last year.

According to the reports of the agricultural correspondents, at the beginning of December in 43.3 % of the cases winter wheat was in average condition, in 30.0 % above average and in 26.7 % below average. The corresponding figures for rye were 36.0 %, 41.2 % and 22.8 %.

*Poland:* The area sown this autumn to winter cereals, in comparison with last year, is 99.8 % for wheat, 106 % for rye and 98.6 % for barley.

In the autumn weather conditions were on the whole favourable to the development of winter cereals. According to 88 % of the reports of the agricultural correspondents, soil moisture was sufficient and according to 91 % of the reports, the frosts have not damaged the crops.

Compared with the situation on 15 October, the crop condition of cereals during the succeeding month did not undergo any perceptible changes either in the country as a whole or in the different provinces.

The crop condition was as follows:

	1935		1934
	15 Nov.	15 Oct	15 Nov.
Wheat . . . . .	3.5	3.5	3.7
Rye . . . . .	3.6	3.6	3.9
Barley . . . . .	3.4	3.5	3.5

Towards the end of November in the eastern part of the country there was snow to a depth of about 4 inches. The snow fell on a frozen soil.

*Romania:* During the last decade of November there was rainfall in nearly all parts. In the Carpathian zone of the Bucovine and in the *départments* of the north of Moldavia and Bessarabia there was precipitation in the form of snow. Temperature fell perceptibly, but remained, however, above the average. The more intense frosts were found only in the north of the country. At the beginning of December the soil appeared to be sufficiently moist in the principal areas producing winter wheat, with the exception of the south of Bessarabia where, particularly in the province of Cetatea Alba (which normally has a wheat acreage greater than 250,000 acres), lack of moisture still persisted.

Tillage for spring sowing was continuing in the greater part of the country.

At the beginning of December crop condition of winter wheat was satisfactory in Transylvania, Oltenia, Muntenia, in the greater part of Dobruja and in the north of Moldavia and Bessarabia. In the five *départements* of Moldavia, along the river Bârlad and in southern Bessarabia, growth was rather backward: a great part of the sowings which were done early were destroyed by drought, while late sowings had not sprouted.

Satisfactory weather conditions at the end of November justified the confident forecasts that the sowings in the chief growing areas will start the winter well developed.

*Yugoslavia:* The variable but mainly dry and cold weather of November, was on the whole favourable to winter cereal sowing and towards the middle of the month this work was finished.

The rain and snow, though slight, were favourable to the germination of the cereals which were already sown.

*U. S. S. R.:* According to official information the total harvest of cereals and legumes for seed during the present year is estimated at 1,986,000,000 centals as against 1,971,000,000 centals in 1934 and 1,695,000,000 centals, the average for the preceding five years. Thus this year's quantities show an increase of 0.8 % and 17.2 % on these figures respectively.

During the second fortnight of November cold weather predominated and at the beginning of December, the greater part of the European area and a considerable part of the Asiatic were covered with snow. During the first decade of

December, the temperature rose, and the snow line moved north of Kiew, Voroneje and Stalingrad and passed into the Asiatic part of the Union.

On crop condition, only fragmentary information is available and this only refers to a small number of localities.

*Argentina:* The latest monthly report of the Department of Rural Economy and Statistics of the Ministry of Agriculture of Buenos Aires, issued on 22 November, contains the following information on the wheat crop.

*Province of Buenos Aires.* — The rains of the middle of November improved the condition of the wheat crop in the north and east. In the southeastern part of the Province, the dry weather and high winds were beginning to injure the crop once more, but in this area also, the rains of the middle of the month affected an appreciable improvement in the situation. In the central part of the Province, where earlier varieties predominate, earing was complete and satisfactory. In the Bahia Blanca district, crop condition was critical until the recent rains fell but the latter only slightly mitigated the serious losses of sowings. The crops in the west were in good condition but the plants were backward. Prospects were poor in the districts bordering on the Pampa. In the Province as a whole, the weather conditions prevailing up to the middle of November were marked by frequent, warm and northerly winds, sudden changes of temperature and drought and were not favourable to the crops. An improvement occurred in the situation after the rains which fell between the 15 and 22 November.

*Province of Santa Fé.* — Uneven growth was the chief feature of the crop and a less than average yield was indicated. In the central and northern parts of the Province the crop was a month late. The early varieties were ripening and reaping had begun in some places. In the south earing was complete in the greater part of the area sown and normal yields were expected.

*Province of Córdoba.* — The early varieties were in good condition though development was not up to normal. The later varieties, however, showed very uneven earing. For the Province as a whole, the yield was expected to be nearly average.

*Province of Entre Ríos.* — The crop was generally late and the plants were deficient in growth. Frequent rains fell between the middle of October and the middle of November and improved the situation which had become very critical. Yields slightly below the average and a production smaller by one fourth were expected.

*Province of Santiago del Estero.* — Prospects were rather poor in all parts of the Province except the irrigated areas where a plentiful crop was expected.

*National Territory of the Pampa.* — The rains of the second half of October give grounds for expecting an improvement in the wheat crop but the weather conditions prevailing up to 20 November were characterized by warm winds, mist and sudden falls in temperature at night and these neutralized the good effect of the rains. In the south, yields will not be more than 3.5 to 4.5 centals (6 to 7 bushels) per acre. In the Province as a whole, the loss of sowings amounted to 40 % of the area sown.

*Chile:* In November the condition of the crops was generally satisfactory, although red rust had caused some damage. There are prospects of an abundant harvest of wheat and the supply will probably exceed the domestic demand for consumption and seed.

*United States:* The area sown to winter wheat is estimated at 47,529,000 acres against 44,530,000 acres last year and an average of 43,408,000 acres in the five years

1929-33. This shows an increase in sowings this year of 6.7 % compared with 1934 and of 9.5 % compared with the average. Crop condition on 1 December was estimated to be 78.2 % of the normal against 77.8 % in December, 1934.

The area sown to rye is estimated at 6,336,000 acres compared with 6,159,000 acres last year and an average of 5,021,000 acres, the increase being 2.9 % and 26.2 % respectively. Crop condition on 1 December was 69.1 against 80.4 on 1 December 1934.

*Mexico:* Weather conditions have been generally favourable to preparatory work on the land, to sowing and to the germination of the seedlings.

*Uruguay:* The new estimate of the acreage sown under wheat for the period 1935-36 shows a diminution of about 24,700 acres on the figures given in the August report; nevertheless the revised estimates show an increase of 9.4 % on the figures of 1934-35 and 14% on the average for the preceding five years. Crop condition at the beginning of November was generally satisfactory. In several producing centres grasshoppers have been notified and it is feared that the crops will suffer

*Japan:* Winter wheat and barley germinated evenly. Weather conditions were favourable.

*Palestine:* Not for some years has the agricultural season opened under such favourable conditions. Early and well-distributed rains caused a very regular germination of all "afir" sown cereals and subsequent falls have given farmers the opportunity of turning over their farm lands under excellent conditions.

Both ploughing and sowing is being energetically pursued. A slight interruption was caused in the northern areas owing to the heavy falls of rain but towards the end of November fine weather enabled the farmers to proceed with their work. The condition of crops in the Beersheba and in the southern and south-eastern areas of Gaza is excellent and the area under cereals is expected to be appreciably larger than that of last season.

*Algeria:* During November rains were fairly frequent but very irregular, particularly in the coastal area and the Tell. All areas, however, had sufficient rainfall to give adequate moisture to the soil and good weather allowed work to proceed actively in the best watered zones. The earlier delay, caused by the drought at sowing time, was made good, and the sowings are rather forward as far as crops cultivated by Europeans are concerned and those cultivated by natives are going forward normally. The progress of sowing has been favoured by the weather conditions.

*Egypt:* Sowing of wheat started at the end of October in limited areas and has been in full swing during November so that the general cultivation is over in many provinces. In the rest of the areas the sowing is still in progress. Irrigation and manuring are proceeding in some of the early cultivations. Germination and growth are satisfactory.

About three quarters of the areas allotted to barley have been completely sown, while the rest of the sowings are in progress. Irrigation is progressing in early cultivations. Germination and growth are satisfactory.

*Kenya:* Favourable rains fell in October and dry weather was subsequently desired for harvesting. Both quality and quantity of the wheat crop were expected to be good.

*French Morocco:* November was relatively dry and mild. Sowings, carried on actively after the rains at the end of October, were slowed down as result of the relative dryness. In the central and southern areas rain was awaited before sowings could be resumed, except in some localities where they could be made in dry soil. Even in the irrigated areas of the south, work was slackened. Preparatory tillage and manure treatment were reduced this year, as a result of the unfavourable economic condi-

tions; yields and quality of the crops will be now more or less affected and the good results obtained by the distribution of selected varieties will be reduced. On the other hand, the action of the native societies has been of importance this year, for it has prevented a great reduction in land under wheat cultivated by natives. Except in the southern regions and in eastern Morocco, where the effects of the drought were particularly felt, cereal sprouting was good and in the Meknes region completely satisfactory.

*Tunisia:* November was sufficiently dry, particularly in the centre and the south, while temperature was normal. In the north (1st, 2nd and 3rd regions) sowing operations by Europeans were almost finished at the end of the month and they were done under excellent conditions. They were proceeding also on native holdings. Sprouting was good.

In the south persistent drought resulted in a great reduction of sowings and in the 5th area they were almost nil. The development of the seedlings is unsatisfactory.

*Union of South Africa:* October was a comparatively dry month practically throughout the Union, although good rains fell in a few districts, and light showers in others. In most districts of the Transvaal, Orange Free State and Natal drought conditions prevailed, and in parts of the Cape Province the urgent need of rain was also felt. On the whole the weather during the month was very changeable, hot weather being followed by cold spells, and in some districts late frosts did considerable damage to crops. Strong winds also prevailed in many parts.

Good rains fell in the south coastal and several other areas of the Cape Province, but on the whole the rainfall was inadequate. Wheat crops in many areas were adversely affected by drought and it was anticipated that yields would not be as good as was at first expected. Nevertheless, the wheat crops on the whole were still promising, especially on irrigated lands, and some excellent and record yields were expected. Rust made its appearance at various places and caused some damage, but it was estimated to be unlikely that the wheat crop as a whole would be affected much thereby. Harvesting had begun in most districts and some farmers had already finished reaping their early wheat crops.

In the Orange Free State rain fell in many districts. Hail accompanied the rain in places and did some damage to crops. On the whole the wheat crops were less promising than in the previous month because of wheat lice and to a lesser extent drought and hail. In a few districts good yields were still expected.

Comparatively little rain fell in Natal during the month and in most districts of this Province drought conditions prevailed. Except in a few districts, the drought continued also in the Transvaal.

At the close of the month, good general rains were falling in many parts of the Union. Some swarms of locusts were reported in the Union, but they had not done much damage as far as the reports refer.

*Australia* (Telegram 16 December): The wheat crop is in good condition in the southern section of Western Australia but only mediocre in other parts of this State. A fairly good yield is expected in South Australia and an average yield in New South Wales. In Victoria the yield is expected to be very plentiful.

## MAIZE

*Argentina:* The most recent report, published on 22 November, of the Department of Rural Economy and Statistics of the Ministry of Agriculture at Buenos Aires contains the following information on the crop condition of maize in the different regions of the country.

Province of Buenos Aires. — In the Northern region, low temperatures impeded the development of the crop, which in general, however, remained in a vigorous condition. In the west 80 % of the maize area was sown, but the crop was late and it was expected that grasshoppers would cause damage. In the south-eastern zone, sowing operations were impeded by the hardness of the soil, while in all the other zones of the province work was proceeding actively.

Province of Santa Fé. — Crop condition was good in the north and was improving on the south. Germination was vigorous and work was being carried on in a normal manner.

### Maize.

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
	1,000 acres			1934	Average	1,000 centals			1,000 bushels			1934	Average
				= 100	= 100							= 100	= 100
Austria . .	162	160	151	100.9	107.0	2,615	3,418	2,794	4,669	6,104	4,989	76.5	93.6
Bulgaria . .	1,775	1,692	1,796	104.9	98.8	22,244	17,411	19,583	39,722	31,091	34,970	127.8	113.6
Spain . . .	1,074	1,072	1,067	100.3	100.7	15,931	17,368	14,971	28,448	31,015	26,733	91.7	106.4
France . . .	831	839	840	99.0	98.9	11,747	11,241	11,076	20,977	20,073	19,779	104.5	106.1
Hungary . .	2,879	2,777	2,764	103.7	104.2	31,659	46,256	39,508	56,535	82,600	70,550	68.4	80.1
Italy (1) . .	3,251	3,293	3,332	98.7	97.6	50,819	64,510	54,205	90,749	115,197	96,794	78.8	93.8
Italy (2) . .	366	385	291	95.0	125.7	...	6,059	3,367	...	10,820	6,013	...	...
*Poland . . .	231	223	232	103.5	99.6	...	1,670	1,961	...	2,982	3,502	...	...
*Switzerland .	2	2	3	100.0	79.1	105,822	106,840	121,329	188,969	190,786	216,659	99.0	87.2
Czecho-slovakia (3)	193	218	337	88.5	57.2	2,581	3,539	5,158	4,609	6,319	9,211	72.9	50.0
Yugoslavia (4)	179	141	...	127.3	...	1,320	1,909	...	2,357	3,409	...	69.1	...
Yugoslavia (5)	6,738	6,671	6,230	101.0	108.1	52,023	113,631	84,599	92,898	202,912	151,070	45.8	61.5
Canada . . .	168	161	142	104.3	118.0	4,348	3,807	2,976	7,765	6,798	5,314	114.2	146.1
United States . .	92,727	87,795	103,353	105.6	89.7	1,233,680	771,191	1,394,160	2,203,000	1,377,126	2,489,572	160.0	88.5
*Manchukuo . .	...	2,774	2,397	...	...	39,683	32,597	36,706	70,863	58,209	65,547	121.7	108.1
*Turkey . . .	...	1,079	951	...	...	10,337	10,783	11,013	18,460	19,255	19,667	95.9	93.9
Algeria . . .	17	19	23	91.1	74.5	132	158	139	236	282	249	83.8	94.9
*Egypt . . .	1,583	1,628	1,926	97.2	82.2	...	34,653	39,391	...	61,880	70,341	...	...
Eritrea . . .	10	28	24	35.4	40.8	79	194	206	142	346	368	40.9	38.5
Kenya (10) . .	129	123	174	104.8	74.0	2,208	1,939	2,463	3,942	3,462	4,398	113.9	89.6
French Morocco . .	996	986	771	101.0	129.1	2,793	5,425	3,021	4,988	9,688	5,395	51.5	92.4
TOTAL . . .	123,723	118,202	132,657	104.7	93.3	1,538,681	1,166,928	1,756,188	2,747,649	2,083,799	3,136,051	131.9	87.6

\* Not included in the total. — 1) Spring crop (*maggengo*) — 2) Summer crop (*cinquantino*). — 3) Crop grown alone. — 4) Mixed crop. — 5) Area sown. — 6) Area expected to be harvested. — 7) Area harvested. — 8) *Nili* variety only, which, however, represents practically all the maize grown in Egypt — 9) Total production (*nili* and *sefi* varieties). — 10) Cultivation by Europeans.

Province of Córdoba. — Sowings were in full swing. The recent rains were favourable for growth. In the province as a whole an increase was expected in the area sown compared with that of last year, some of the area intended for wheat and flax being sown to maize because weather conditions were very unfavourable for the sowing of the two former crops.

Province of Entre-Ríos. — First seedlings sprouted in a uniform manner and were growing vigorously. In all the province, cultivation, favoured by the weather, continues actively.

Province of Santiago del Estero. — Sowing was done under good moisture conditions. Germination was normal. In the Pampa territory sowing was done slowly, particularly in the north where more moisture was desired.



*Mexico:* In the producing areas of the north and the centre it is anticipated that the harvest will be smaller than that of last year, because of the damage done to the crop by the excessive rains.

*Java and Madura :* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning maize area:—

	1935 acres	1934 acres
Area harvested in October . . . . .	337,300	428,000
Area harvested from 1 January to 31 October .	4,582,600	3,890,000
Area of standing crops at the end of October .	1,732,000	1,746,600

*Egypt:* Late plantations of *nuh* maize are progressing towards complete maturation. Harvesting has been in full swing during this month. It is over in the south of the Delta, while in the north of the Delta and Middle Egypt about three quarters of the crop are already harvested. In Upper Egypt, however, early and general plantations are still being harvested. The yield is expected to be 6 % above the average

*Kenya:* Weather conditions were favourable in October and a good crop was expected.

*Union of South Africa.* Comparatively dry conditions prevailed in October throughout the greater part of the Union. In a few districts where good rains were received farmers commenced ploughing operations. In most districts, however, it was too dry to plough, and in some parts when it rained, the farmers were not in a position to plough owing to the poor conditions of their trek-oxen.

## RICE

*Argentina* According to the most recent estimate, area cultivated to rice in 1934-1935 is about 38,200 acres against 47,200 in 1933-34 and 15,100 on the average of the five years ending 1932-33; percentages, 80.8 and 253.4. The corresponding production is estimated at about 770,000 celtals (1,710,000 bushels) against 739,000 (1,642,000) and 232,000 (515,000); percentages, 104.2 and 331.9

*British Guiana* In October weather conditions were favourable. Reaping of the autumn rice crop continued.

*Taiwan* Growing conditions of second crop rice are average.

*India:* In Bengal during the second half of November and the first half of December the weather was dry. The harvesting of winter paddy was progressing

In Bihar and Orissa also the weather was dry except for light rains about the middle of November. In the first decade of December harvesting of winter paddy was being completed.

In the Central Provinces, during the second and third decades of November and the first week of December, the weather was clear and cool. Rice was being harvested and threshed.

In Assam, during the second half of November and the first half of December, the weather continued to be seasonable. Crop prospects were fair.

In Madras heavy rains fell during the first half of November in the Carnatic and the south of the Presidency. In the second part of the month rain was moderate, while in the first week of December there was no rain. The transplanting and sowing of rice were progressing.

The district estimates for the second provincial forecast on the rice crop in Burma for 1935-36 are summarized in the following table:—

		Current year's figures	Difference between current year's figures and	
			corresponding estimate of last year	final figures for last year
		acres	acres	acres
Area sown . . . . .	Lower Burma	9,667,400	— 28,200	— 35,000
	Total Burma	12,420,700	— 259,400	— 267,000
Area estimated as destroyed	Lower Burma	92,900	— 67,900	+ 17,100
	Total Burma	186,300	+ 53,100	— 151,500
Area likely to mature (i. e. area sown less area des- troyed) . . . . .	Lower Burma	9,574,500	— 96,100	— 52,100
	Total Burma	12,234,400	— 312,500	— 115,500

This forecast deals with conditions as they stood at the end of October. The area expected to mature in Lower Burma was 116,500 acres more than was shown in the first forecast and 52,100 acres less than the actual matured area of last year. The crop was generally in good condition, and prospects were very favourable. In

### Rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/36	1934/35	Average 1929/30 to 1933/34	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36	
				1934/	Average							1934/	Average
			1935	1935	1935			1935					
			1,000 acres	= 100	= 100			1,000 centals			1,000 bushels of 45 lb.	= 100	= 100
Bulgaria . .	19	20	18	94.7	102.7	380	404	348	844	898	772	94.0	109.3
Spain . . . .	114	114	118	100.5	96.8	6,510	6,473	6,596	14,467	14,384	14,657	100.6	98.7
Italy . . . .	340	323	345	105.1	98.4	14,494	13,602	14,701	32,209	30,226	32,669	106.6	98.6
United States	789	781	890	101.0	88.7	17,100	17,233	18,784	38,000	38,296	41,742	99.2	91.0
Chosen . . .	4,127	4,195	4,073	98.4	101.3	73,045	68,402	68,163	162,319	152,001	151,471	106.8	107.2
India 1) . .	78,161	78,712	79,211	99.3	98.7	—	—	—	—	—	—	—	—
Indo-China:													
Annam 2) .	961	945	1,000	101.7	96.1	—	7,540	7,592	—	16,755	16,870	—	—
Tonkin 3) .	1,236	1,156	1,208	107.0	102.3	14,037	12,801	14,429	31,192	28,446	32,063	109.7	97.3
Japan . . . .	7,855	7,772	7,906	101.1	99.4	233,472	212,116	250,969	518,815	471,359	557,697	110.1	93.0
Taiwan 4) .	733	713	664	102.8	110.3	17,710	17,985	14,453	39,354	39,965	32,117	98.5	122.5
Egypt . . . .	488	407	336	120.1	145.3	15,905	11,304	8,920	35,344	25,120	19,823	140.7	178.3

1) Second estimate. — 2) First half-year — 3) Rice of the fifth month. — 4) First crop.

Upper Burma the standing crops were in fair to good condition, cultivation having been retarded by a prolonged break in the rains in August-September. The rains appeared to have stopped at the end of October, but started again early in November, causing breaches over a wide area in the dry zone of Upper Burma. The extent of the damage in that part of the Province is not yet known, but so far as can be ascertained the Lower Burma crop as a whole has not been affected adversely, while areas replanted after the earlier floods have benefited considerably.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning rice area:—

	1935 acres	1934 acres
<i>Area harvested in October:—</i>		
Wet padi . . . . .	326,400	357,800
Dry padi . . . . .	2,200	3,000
<i>Area harvested 1 January to 31 October.—</i>		
Wet padi . . . . .	7,962,600	7,778,500
Dry padi . . . . .	947,900	951,900
<i>Area of standing crop at the end of October —</i>		
Wet padi . . . . .	787,000	890,300
Dry padi . . . . .	217,000	237,000

*British Malaya:* Rainfall in September was deficient in most areas and especially in North Kedah, the central and south districts of Province Wellesley, Kelantan and Southern Pahang; in these zones nurseries were lost and planting operations delayed. In parts of Krian also the abnormally dry weather hindered planting, while in most other parts of Perak clearing and transplanting operations progressed satisfactorily. In Negri Sembilan the padi was generally making good growth and an average crop was anticipated. In Malacca planting was nearly completed except in the coastal areas of the Jasin district. In Kelantan the dry weather during September rendered possible a second weeding of the dry padi crop which was expected to give a good yield, but wet padi nurseries on dry land sites were in a number of cases killed by drought. In Northern Pahang transplanting was complete in the riverine area and was well advanced elsewhere. Shortage of water, however, caused irregular and slow growth, and localized flooding towards the end of the month worsened the crop condition. In Southern Pahang also growth was poor owing to drought. In Pahang East weather conditions were more favourable and the padi in the planted areas was reported to be doing well.

In October the weather was normally cooler and wet except in Kelantan where rainfall was slightly deficient, and in the Larut district of Perak and the Lipis district of Pahang, where rainfall was considerably above the average. Minor floods causing little damage were reported in localized areas of Kedah and Pahang. The timely change in the weather relieved the situation in Kedah, Province Wellesley and Krian and enabled transplanting to be practically completed and the standing crop to make good progress.

Similar conditions were reported in the remainder of Perak except in a few areas where the unfavourable weather had hindered planting operations or affected crop condition. In Malacca planting was almost completed and the standing crop on the whole made good progress except in certain areas where damage was caused by floods. In Kelantan condition of the dry padi crop was satisfactory and good yields were anticipated. Prospects for the wet padi crop, although not bright, improved considerably with the arrival of wetter weather. In Northern Pahang transplanting was practically completed, while in the down-river areas the padi was beginning to ripen. A fair crop was expected.

*Siam:* In the first report for the new rice crop, 1935-36, published last month, the area planted in 60 provinces as at the end of September was stated to be 15,121,000 acres, against 7,160,000 acres at the same time last year. However, later information revealed that 99 districts, which had last year about 2,620,000 acres of cultivable land,

failed to report at the end of September, and this accounted for the heavy decrease in the total area planted.

According to telegraphic reports received in November by the Department of Agriculture and Fisheries of Siam from 60 provinces, it appears that at the end of October 7,082,000 acres were planted, as against 7,626,000 acres at the same time in 1934, and 7,366,000 acres in 1933. It should be noted that reports were still missing from 9 districts. The area damaged was 580,800 acres, compared with 412,400 acres at the same time in 1934, and 306,000 acres in 1933. The damage was chiefly caused by floods which destroyed about 444,400 acres.

The conditions of the crop at the end of October were stated to be as follows 21 provinces doing well, and 39 provinces fairly well

*Egypt.* Harvesting of *sefi* rice was over by the end of November. Threshing and storing are in progress. The unit yield is 14 % above the average.

By the end of November the harvesting of *mli* rice in the early and general cultivations was already over, while in the late cultivations it is still in progress. It is expected that the unit yield will be 9 % above the average.

## THE POTATO CROPS

The figures for of the potato crop of France were published during the course of this month, but those for Czechoslovakia are not yet available. The French crop was not good. The figures for 1935 showed a decrease of about 15 % on the figures of 1934 and of about 10 % compared with the average for the preceding five years. Like those of 1930 (511,571,000 bushels), of 1928 (413,874,000 bushels) and that of 1926 (409,190,000 bushels), the present crop was one of the least satisfactory on record in France for the least ten years.

For Czechoslovakia, the third country in the order of importance as far as production is concerned, the figures have yet to be published. However, from the information available about the weather conditions which prevailed during the important period of growth, there is reason to believe that the crop is about average.

Two other European countries, which are also large producers of potatoes, Germany and Poland, made fairly appreciable changes in their previous estimates. Germany raised its production estimate by almost 18 million bushels which makes the 1935 crop now equivalent to 87.7 % of last year's crop and 92.3 % of the average for the last five years.

For Poland the increase was still greater. It was estimated at 92 million bushels and brings the crop of 1935 to a total of about 1,171 million bushels, which is equivalent to 95.2 % and 104.9 % of last year's crop and the average respectively.

For other less important producing countries, England and Wales and Scotland increased their total production by about 7 million bushels, Latvia slightly decreased its estimate while Denmark indicated that this year's crop was not as good as last year's but larger than the average by about 11 %.

We give below the yields per acre of the most important producing countries for which figures are available.

*Yield per acre.*

Bushels of 60 lbs

Countries	1935	1934	Average 1929-33
Germany . . . . .	221.7	239.2	232.1
Poland . . . . .	167.3	180.2	167.6
France . . . . .	148.1	175.6	163.6
United States . . . . .	108.8	116.4	107.4
Belgium . . . . .	252.2	302.3	326.7
England and Wales . . . . .	235.4	263.3	240.9
Scotland . . . . .	250.5	273.3	264.2
Netherlands . . . . .	265.9	303.8	296.0

Although the production figures for Czechoslovakia are not yet known, there is reason to believe that no great modification will be made in the previous

*Potatoes.*

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
				1934	Average							1934	Average
			1,000 acres					1,000 centals			1,000 bushels of 60 lbs		
Germany (s)	324	585	599	55.4	54.1	28,751	51,851	65,789	47,917	86,417	109,647	55.4	43.7
Austria (s)	6,471	6,598	6,434	98.1	100.6	875,452	979,488	913,644	1,459,057	1,632,448	1,522,710	89.4	95.8
Belgium . .	494	499	484	99.0	102.2	45,191	60,613	58,175	75,316	101,020	96,957	74.6	77.7
Bulgaria . .	402	397	418	101.4	96.3	60,848	71,912	81,905	101,411	119,851	136,505	84.0	74.3
Denmark . .	36	35	32	101.7	113.2	2,663	1,857	1,413	4,439	3,094	2,355	143.4	188.5
*Spain . . .	186	189	169	98.2	110.0	27,170	30,269	24,500	45,282	50,447	40,832	89.8	110.9
Estonia . . .	1,060	1,134	991	93.4	107.0	...	106,293	103,223	...	177,152	172,034	...	...
Finland . . .	182	177	165	102.5	110.5	17,847	19,668	18,530	29,744	32,779	30,883	90.7	96.3
France . . .	210	206	185	102.0	113.7	29,035	25,119	21,586	48,391	41,865	35,976	115.6	134.5
Engl. & W. .	3,477	3,484	3,491	99.8	99.6	309,065	367,139	342,614	515,099	611,887	571,012	84.2	90.2
Scotland . .	463	488	483	95.0	95.9	65,386	77,034	69,758	108,976	128,389	116,263	84.9	93.7
*N. Ireland .	132	140	139	94.3	94.7	19,846	22,960	22,104	33,077	38,267	36,841	86.4	89.8
Hungary . .	129	137	141	94.0	91.7	...	20,673	21,293	...	34,455	35,489	...	...
*Italy . . .	749	717	707	104.5	105.9	31,503	46,709	39,112	52,504	77,848	65,185	67.4	80.5
Latvia . . .	1,002	1,001	953	100.2	105.2	...	59,672	49,107	...	99,451	81,844	...	...
Lithuania . .	306	266	237	115.0	128.8	32,213	31,875	26,273	53,688	53,123	43,787	101.1	122.6
Luxemburg . .	461	452	398	102.0	115.9	40,189	54,964	41,234	66,980	91,606	68,722	73.1	97.5
Malta . . .	41	40	41	100.6	98.9	3,616	4,308	4,431	6,026	7,180	7,385	83.9	81.6
Norway . . .	8	7	7	116.1	110.4	392	539	597	654	899	994	72.7	65.8
Netherlands .	123	120	118	102.2	103.7	18,692	17,649	19,630	31,152	29,414	32,717	105.9	95.2
Poland . . .	345	356	414	97.0	83.4	55,003	64,820	73,447	91,670	108,031	122,409	84.9	74.9
*Romania . .	7,002	6,825	6,662	102.6	105.1	702,480	737,899	669,965	1,170,776	1,229,807	1,116,587	95.2	104.9
Switzerland .	509	505	483	100.7	105.2	...	42,367	39,367	...	70,610	65,611	...	...
Czechosl. (s)	112	112	115	100.0	97.5	14,551	18,629	15,894	24,250	31,048	26,489	78.1	91.5
— (s)	99	97	87	102.1	114.1	4,436	6,705	6,989	7,393	11,174	11,648	66.2	63.5
— (s)	1,750	1,753	1,701	99.8	102.8	...	204,352	199,589	...	340,580	332,641	...	...
Canada . . .	507	569	551	89.1	92.0	38,786	48,095	44,527	64,643	80,158	74,212	80.6	87.1
United States	3,271	3,312	3,188	98.8	102.6	213,600	231,253	205,370	356,000	385,421	342,283	92.4	103.0
Algeria (s)	16	14	26	115.2	62.8	812	851	970	1,354	1,418	1,617	95.5	83.7
Eritrea (s)	19	20	25	91.4	74.1	1,213	1,407	1,002	2,021	2,345	1,670	86.2	121.0
— (s)	1	2	1	200.0	190.5	8	4	5	13	7	9	180.0	147.5
*New Zealand	23	23	25	99.6	91.5	...	2,444	2,950	...	4,074	4,917	...	...
TOTALS . .	25,437	25,705	25,176	98.9	101.0	2,638,748	2,973,617	2,769,464	4,397,833	4,955,943	4,615,686	88.7	95.3

(1) Area under 500 acres. — s) Early potatoes. — l) Late potatoes.

forecast-viz, that the 1935 crop in the northern hemisphere will be less than the plentiful 1934 crop, and also less than the five year average. It may be estimated at about 5,258 million bushels, compared with 5,891 million for last year and an average of 5,512 million in the period 1929 to 1933.

V. B.

## POTATOES

*Spain*: The potato crop was on the whole less than the previous one because of the great drought during the summer months. It was estimated that this year's will be from 5 % to 6 % less than that of 1934, which was 106 million centals (177 million bushels), but greater than the average production for the last ten years

*France*: According to the preliminary estimate, area cultivated to Jerusalem artichokes this year was about 337,500 acres against 335,800 in 1934 and 329,900 on the average of the five years ending 1933, percentages. 100.5 and 102.3. The corresponding production is estimated at about 48,931,000 centals against 40,028,000 and 51,841,000, percentages, 99.8 and 94.4.

*Great Britain and Northern Ireland*: The harvesting of potatoes had been practically completed by the end of November, but in some areas, lifting and clamping has been difficult and prolonged. The quality and condition of the crop appear to be fairly good but in some districts, owing to the wet weather experienced during lifting, there are doubts about the keeping capacity of the tubers, and the presence of blight and damage by slugs and wire worms has been noticed in supplies already sent to market

Production this year in Great Britain will be smaller than last year and the average yield per acre is also reduced.

*Palestine*: The early-sown potatoes under irrigation are showing up well and winter sowing is in progress. The first consignment of 137 tons purchased by Government for sale to potato growers arrived during the last week of November and 50 tons have been distributed in the northern areas and 87 in the south. The balance of 13 tons is for late sowing in the Jerusalem district. The second consignment of 100 tons is expected to arrive shortly. The demand for potatoes is heavy and merchants importing consignments of Dutch varieties for domestic use, are finding a ready sale for them as seed.

*Algeria*: The fairly frequent and heavy rains during November caused some damage in market garden crops, but in general they benefited from this humidity. The plants are sufficiently vigorous.

*Tunisia*: The heavy rains of October were favourable in the north to the growth of all market garden crops, but in the south these have been much reduced owing to the persistent drought.

## SUGAR

On the whole, the weather during November was favourable for the lifting of beets and for transport to the factories except in some cases where excessively wet weather presented difficulties as in some areas of Germany, France, Poland and, to a greater extent, in England where some beet fields were waterlogged after the heavy rains.

The figures showing the production of beet-sugar presented in the table are substantially the same as those published last month, the data received sub-

sequently entailing no considerable modifications. Decreases have occurred only in the estimates of Bulgaria and Great Britain and increases only in those of Denmark and Latvia. The figure for the total beet-sugar production of Europe, however, is now slightly below that given a month ago. According to official information, the estimate of the production of sugar in the U. S. S. R. has been increased as a result of the large production of beet. The estimate of sugar production in the United States is, on the contrary, reduced, yields in this country being below expectations.

As in previous years, this issue of the *Crop Report* contains the monthly production figures from the beginning of the sugar year to 30 November, compared with the figures of last year, for all countries which publish these data, as well as the estimates of total sugar production.

*Production of Beet Sugar (raw).*

COUNTRIES	PRODUCTION (1 Sept.-30 November)		TOTAL PRODUCTION DURING THE SEASON			% 1935-36	
	1935-36	1934-35	1935-36 1)	1934-35	Average 1929-30 to 1933-34	1934-35 = 100	Average = 100
	Thousand cents						
Germany . . . . .	2) 10,433	2) 11,531	35,371	37,104	38,134	95	93
Austria . . . . .	2,882	3,002	4,068	4,921	3,390	83	120
Belgium . . . . .	—	—	5,567	5,859	5,412	95	103
Bulgaria . . . . .	285	43	397	47	821	838	48
Denmark . . . . .	—	—	5,181	1,984	3,651	261	142
Spain 3) . . . . .	2) 958	2) 1,430	4,938	7,496	6,136	66	80
Irish Free State . . . . .	758	265	2,138	1,643	513	130	417
Finland . . . . .	143	137	176	262	102	67	173
France . . . . .	16,395	17,300	21,297	26,959	21,875	79	97
Great Britain . . . . .	7,334	8,212	12,125	14,664	8,385	83	145
Hungary . . . . .	2) 1,181	2) 1,800	2,183	2,638	3,727	83	59
Italy . . . . .	—	—	6,834	7,275	8,298	94	82
Latvia . . . . .	625	662	970	1,336	362	73	268
Lithuania . . . . .	467	238	584	335	248	174	236
Netherlands . . . . .	2) 1,969	2) 2,422	4,716	5,120	5,394	92	87
Poland . . . . .	—	—	9,755	9,855	12,984	99	75
Romania . . . . .	—	—	2,646	2,568	2,501	103	106
Sweden . . . . .	6,140	5,992	6,358	5,992	4,375	106	145
Switzerland . . . . .	—	—	187	187	149	100	126
Czechoslovakia . . . . .	12,291	13,795	12,302	14,025	18,295	88	67
Yugoslavia . . . . .	—	—	2,017	1,378	2,088	146	97
<i>Total Europe a).</i> . . . .	—	—	139,810	151,648	146,840	92	95
U. S. S. R. . . . .	35,447	—	46,300	31,765	25,945	146	178
<i>Total Europe b).</i> . . . .	—	—	186,110	183,413	172,785	101	108
Canada . . . . .	—	—	1,433	1,295	1,215	111	118
United States . . . . .	—	—	26,786	24,817	27,445	108	98
<i>Total North Amer.</i> . . . .	—	—	28,219	26,112	28,660	108	98
Japan . . . . .	—	—	1,102	863	581	128	190
Turkey . . . . .	—	—	1,422	1,300	637	109	223
<i>Total Asia</i> . . . . .	—	—	2,524	2,163	1,218	117	207
GENERAL TOTALS { a) . . . .	—	—	170,553	179,923	176,718	95	97
b) . . . .	—	—	216,853	211,688	202,663	102	107

a) Not including U. S. S. R. — b) Including U. S. S. R. — 1) Approximate data. — 2) Production to the end of October. — 3) The season begins at 1st July.

Statistics showing the production of cane-sugar in the year 1935-36 are not sufficiently complete to enable a table to be drawn up as, in some cases, the total quantity of sugar to be produced has not yet been determined. From the various information to hand, it may be stated that sugar production this year will be approximately equal to that of 1935, or, perhaps, slightly larger.

*Spain:* Production of beet was much less than that during the preceding years. This reduction was due to a reduction in acreage which was caused by the unfavourable conditions under which the crops were grown.

*Great Britain and Northern Ireland:* A large proportion of the sugar-beet crop has been lifted under very difficult conditions and neither quantity nor quality appear to be up to the average, though there is evidence of definite increases in the yield per acre during November. It is anticipated that the sugar content will prove to be less than normal.

*Barbados:* Beneficial showers were experienced in October and the condition of the cane crop was generally good, so that a record output was expected.

### Sugar-beet.

COUNTRIES	AREA					PRODUCTION							
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933,	1935	1934	Average 1929 to 1933	% 1935	
				1934	Average							1934	Average
			= 100	= 100	= 100			= 100					
1,000 acres	1,000 centals	1,000 short tons											
Germany . .	920	881	936	104.5	98.3	217,171	229,157	235,911	10,858	11,458	11,795	94.8	92.1
Austria. . .	107	123	98	87.3	109.5	23,327	30,602	20,856	1,166	1,530	1,043	76.2	111.8
Belgium . .	130	136	135	95.8	96.7	34,827	37,252	35,949	1,741	1,863	1,797	93.5	96.9
Bulgaria . .	17	4	39	413.4	43.6	3,401	422	5,945	170	21	297	805.2	57.2
Denmark . .	123	118	89	103.8	137.6	41,339	23,092	26,092	2,067	1,155	1,305	179.0	158.4
Finland . .	7	7	5	102.1	149.6	1,543	2,227	881	77	111	44	69.3	175.2
France . .	764	831	772	91.9	99.0	190,905	228,120	191,727	9,545	11,406	9,586	83.7	99.6
Engl.and W.	367	396	286	92.6	128.4	69,440	90,317	54,733	3,472	4,516	2,737	77.4	127.7
Scotland . .	7	8	1	98.2	661.1	1,478	1,608	187	74	80	9	91.9	79.1
Hungary . .	109	110	145	98.9	75.0	16,246	20,332	25,695	812	1,017	1,285	79.9	63.2
*Italy . . .	227	224	252	101.5	90.0	...	58,466	57,694	...	2,923	2,885	...	...
*Latvia . . .	38	36	1)	26	107.6	145.0	...	7,404	3)	4,094	...	370	205
*Lithuania .	17	10	3)	8	178.1	220.1	...	2,097	1,254	...	105	63	...
Netherlands.	101	104	117	96.7	85.7	29,923	39,370	38,399	1,496	1,968	1,920	76.5	77.9
*Poland . .	292	277	389	105.3	74.9	...	56,582	73,544	...	2,889	3,677	...	...
*Romania . .	91	92	87	98.9	104.1	...	14,287	13,370	...	714	669	...	...
*Sweden . .	4) 122	125	94	98.0	129.0	...	41,049	27,562	...	2,052	1,378	...	...
*Switzerland.	4	4	3	96.8	113.1	...	1,543	1,023	...	77	51	...	...
Czechoslov.	387	393	468	98.6	82.7	77,056	93,495	109,113	3,853	4,675	5,456	82.4	70.6
*Yugoslavia	4) 69	64	112	108.0	62.0	...	10,583	16,724	...	529	836	...	...
U. S. S. R. .	2,763	2,923	2,940	94.5	94.0	341,718	209,440	211,071	17,086	10,472	10,553	163.2	161.9
Canada. . .	53	52	48	101.2	110.1	9,260	8,614	9,016	463	431	451	107.5	102.7
United States	771	766	785	100.7	98.2	160,000	149,620	178,068	8,000	7,481	8,903	106.9	89.9
TOTALS. . .	6,626	6,852	6,864	96.7	96.5	1,217,634	1,163,668	1,143,643	60,880	58,184	57,181	104.6	106.5

\* Countries not included in the totals. — 1) Average 1932 and 1933. — 2) Year 1933. — 3) Average 1930 to 1933. — 4) Unofficial figure.



*Haiti:* Total exports of sugar during the past commercial year (October 1934-September 1935) were 717,800 centals (35,900 short tons), which is 46 % greater than the exports of 1933-34 and 32 % greater than those for 1932-33.

*Leeward Islands:* During the month of October good showers fell in Antigua and St. Kitts, but more rain was still badly needed for the sugar crop.

*Trinidad:* It was reported in October, that weather conditions had been ideal or the 1936 sugar crop, and it was expected that all previous records would be surpassed.

*Taiwan:* Growing conditions of the cane to be cut from this autumn to the next spring are fairly satisfactory, those of the cane now being planted are average.

*India:* In the United Provinces dry weather continued in November. During the first half of December rainfall was nearly general in the west part of the region.

In the Punjab dry conditions predominated except for light rains in localized areas. Crop condition was unchanged.

In Bengal also the weather was dry. The cutting and pressing of sugar-cane continued. The condition of the standing crops was fair, except in the west and north, where it was unsatisfactory owing to the prolonged drought. In Madras heavy rains fell during the first half of November in the Carnatic and the south of the Presidency. In the second part of the month rain was moderate, while the first week of December was dry. Crop condition was fair.

*Egypt:* Maturation of sugar cane is proceeding satisfactorily. The areas for local consumption are being cut. The crop is satisfactory.

*Mauritius:* It was reported at mid-November that weather conditions for next year's crop had been favourable up to that date.

*Union of South Africa:* The October crop condition averaged 9 % below normal. Hot and windy weather conditions prevailed. The rainfall for the month was below the average throughout the sugar belt.

Sugar production for the 1935-36 season was estimated at 8,464,000 centals (423,200 short tons) as compared with 7,175,000 (358,700) in 1934-35 and 7,071,000 (353,600) on the average of the five seasons 1929-30 to 1933-34. Percentages: 118.0 and 119.7.

## WINE PRODUCTION IN THE NORTHERN HEMISPHERE

Since last month, France, Germany and Tunisia have issued estimates of their outturn and, in addition, production in Yugoslavia has been evaluated on the basis of an unofficial but reliable estimate. Indications are thus available of production in eleven countries of the northern hemisphere which normally produce 86 % of the total of this hemisphere, inclusive also of the production in the Soviet Union. If this country, information on which is almost completely lacking, is excluded, sufficient data is known to allow a rough estimate to be made of the crop of the northern hemisphere.

This amounts to between 4,220 and 4,290 million Imperial gallons (5,070 and 5,150 million American gallons). It is, therefore, very close to that of last year which reached 4,250 (5,100) million gallons, excluding the production of Russia and Turkey but including that of the United States and various Asiatic countries. This result is larger than all expectations, including those made at the end of last month, after the vintage. The error in forecasting occurred

almost entirely in the estimate of the French outturn, and, to a smaller extent, in that of Germany which records a crop equal to  $\frac{9}{10}$  of that of last year.

More detailed comments on the French vintage are made below but it is convenient to add here that the observations on the increased productivity of

*Vines (for wine).*

COUNTRIES	AREA					PRODUCTION OF WINE							
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	1935	1934	Average 1929 to 1933	% 1935	
				1934	Average							1934	Average
			1935	1934	1935			1934			1935	1935	1934
1,000 acres	1,000 Imperial gallons	1,000 Amer. gallons	= 100	= 100	= 100	= 100							
Germany a) 1) . . .	178	180	177	98.9	100.8	† 89,691	† 99,535	† 49,243	† 107,711	† 119,533	† 59,137	90.1	182.1
Austria a) 1) . . .	67	67	71	101.7	93.5	26,397	19,993	22,737	31,700	24,010	27,305	132.0	116.1
*Bulgaria a) 1) . . .	237	229	203	103.8	116.9	† 58,020	† 44,028	† 51,524	† 69,677	† 52,874	† 60,775	103.8	116.9
Spain a) . . . . .	3,389	3,389	3,302	100.0	100.0	† 361,589	† 477,760	† 454,254	† 434,236	† 573,746	† 545,518	75.7	79.6
France a) 2) . . . .	3,719	3,654	3,518	101.8	105.7	1,606,646	1,652,976	1,422,532	1,929,437	1,985,075	1,372,078	97.2	140.6
*Greece a) . . . . .	347	317	317	100.0	100.0	† 78,710	† 63,274	† 70,992	† 94,524	† 75,987	† 85,255	100.0	100.0
*Hungary a) . . . . .	469	3) 474	474	100.0	100.0	† 55,919	† 75,016	† 65,466	† 67,154	† 90,087	† 75,016	100.0	100.0
Italy b) . . . . .	(2,415)	(2,413)	4) —	(100.1)	—	—	—	—	—	—	—	—	—
	(7,274)	(7,288)	4) —	(99.8)	—	—	—	—	—	—	—	—	—
	4,839	4,842	4,814	99.9	100.5	968,000	672,008	845,416	4) 1,162,000	807,021	1,015,268	144.0	114.0
Luxemb. a) . . . . .	3	3	3	100.0	85.5	† 1,540	† 3,073	† 1,454	† 1,849	† 3,690	† 1,746	50.1	105.9
*Portugal b) 1) . . .	—	—	868	—	—	—	237,677	154,490	—	285,429	185,528	—	—
Romania a) . . . . .	—	—	574	—	—	176,000	191,468	165,023	211,000	229,935	198,178	91.9	106.6
Switzerland b) 1) . .	33	33	32	100.0	102.9	21,998	18,698	10,868	26,417	22,455	13,051	117.6	202.4
*Czechoslov. b) 1) . .	58	52	46	111.1	126.4	—	7,228	8,471	—	8,680	10,173	—	—
Yugoslavia a) . . . .	—	492	470	—	—	6) 66,000	85,057	82,093	79,000	102,146	98,586	78.0	80.0
Total Europe . . . .	—	—	—	—	—	3,273,000	3,162,500	2,723,100	3,929,000	3,797,900	3,270,200	103.5	120.2
—	—	—	—	—	—	—	—	—	—	—	—	—	—
Algeria a) 2) . . . .	987	958	759	103.1	130.1	415,975	484,887	340,765	499,548	582,306	409,228	85.8	122.1
*Libia b) 1) . . . . .	—	16	10	—	—	—	532	381	—	639	457	—	—
*Fr Morocco a) . . .	—	36	19	—	—	—	12,758	6,379	—	15,322	7,660	—	—
Tunisia a) . . . . .	—	109	96	—	—	37,132	37,396	26,048	44,593	44,909	31,282	99.3	142.6
Total Africa . . . .	—	—	—	—	—	453,100	522,300	366,800	544,100	627,200	440,500	86.8	123.5

\* Countries for which figures are not included in the totals. — †) Must.  $\frac{9}{10}$  of these figures are taken in computing the totals, this proportion representing the corresponding quantity of wine. — a) Bearing area. — b) Total area. — c) Unmixed crop. — d) Mixed crop. — e) All vineyards: the figures for the area are calculated by taking  $\frac{1}{3}$  of the area of the mixed crop. — 1) All vineyards, including a small proportion of vines for table grapes. — 2) Incomplete figures (crop declarations). For France the differences were in 1934: 190,000 acres, 66,003,000 Imp galls and 79,264,000 Amer. galls, those of Algeria and Tunisia are insignificant. — 3) Average 1932 and 1933, the statistics for previous years do not separate the vines for wine but indicate an almost constant area. — 4) The recent cadastral revision make any comparison impossible. — 5) Approximate figure, calculated from the production of grapes for wine. — 6) Approximate unofficial estimate

French vineyards apply also to most of the other countries, including Italy, the Danube countries, Greece, Germany, Austria, the United States and probably Switzerland and Portugal. In the case of Spain, the area figures of 1933 and 1934, which have just been issued, show that the vineyards are undergoing a process of transformation, which, though it has not affected the recent crops, will exert an influence in the near future. It can be said of the vineyards of the northern hemisphere as a whole, as of the French vineyards in particular, that they have now reached a level of maximum productivity and, at the same time, their maximum extent. The area figures given in the table printed above show that the growth in vineyards has not yet stopped completely and that, on

the contrary, it is continuing slightly in some countries. The growth in the production and consumption of table grapes, though appreciable, has only a comparatively slight influence on the viticultural industry.

When the situation brought about by the very plentiful yield of this year is considered, it is seen that, strictly speaking, a substantial excess in production has occurred only in the Franco-Algero-Tunisian group. Supplies here are about equal in magnitude to those of last season which left stocks of 227 million Imperial gallons (272 million American gallons), representing 10 % of the initial supplies, in spite of the measures adopted to absorb surpluses by compulsory distillation and the resulting increase in the production of alcohol.

Notwithstanding the large outturn it secured this year, Italy does not appear to have a surplus production. The increase of 88 million Imperial gallons (105 million American gallons) on the average of the ten years 1924-1933 will probably be absorbed either by a slight increase in consumption resulting from the increase in the population or by production of alcohol for industrial purposes.

It is impossible to determine the position of Portugal and Greece which are two of the three large exporting countries.. Spain should be able to dispose of its very low production fairly easily, but the decline in its export trade and internal consumption and the presence of stocks carried over from earlier seasons still makes the position of Spanish viticulture rather difficult.

The four Danube countries - Romania, Yugoslavia, Bulgaria and Hungary taken together have a crop about equal to the average production of the last five years and corresponding with the prospects of consumption brought about by the growth in domestic demand. Here again, however, export difficulties will prove to be an obstacle to the wine trade of these countries.

The countries of Central Europe - Germany, Austria, Switzerland and Czechoslovakia - which must supplement their domestic production, in the main have a very plentiful crop practically equal to that of last year and larger by a half than the average of the preceding five years. The most likely result will be a reduction in their imports of foreign wines.

## VINES

*Austria:* The new wines are clearing slowly. Those produced from the latest vintage are of excellent quality. The growth of the shoots is satisfactory.

On the 1 December the condition of the vines was 1.6 as on the 1 November of this year and against 1.9 on 1 December 1934.

*France:* The total figure showed that a greater quantity of wine was produced than was expected at the end of the vintage. Forecasts were exceeded in all vine growing areas. Compared with last year the increase in production was considerable in Languedoc, Roussillon, Gascogne, Provence and Côtes du Rhône, while in Bordelais, the Gironde, Charentes, the Loire Valley, Burgundy, Jura, Champagne, Lorraine and Alsace the deficit was smaller than anticipated. In every case and in all areas production this year was greater than the average (for the last five, ten or fifteen years). In the southern zone Provence, the lower part of the Rhone Valley, Languedoc, Roussillon and Gascogne, production reached a record, while in the majority of the other areas, particularly in the regions of the great floods, Bordelais, the Loire Valley, and Burgundy, production was smaller than that of last year and also less than that of the

good years 1922, 1927 and even less than that of 1923, 1925 and 1929. The crop of the low lying area of the Garonne, — Bordelais, Dordogne, Lot-et-Garonne, — only exceeded by 7 % and that of the Loire area by 9 %, the average production for the post-war period 1919-33, while there was an increase of 39 % in the southern area.

Favourable weather conditions and particularly the absence of cryptogamic disease were without doubt among the factors responsible for the heavy production of the last two years. But the extension of vineyards and especially the partial reconstitution were also strong factors. The total area of vineyards was hardly greater than it was in 1922, but, on the one hand there was a great increase, of more than 20 % in the southern area with big yields, while in other areas there was a reduction, particularly in the areas affected by the great floods. On the other hand, in the southern areas, the vineyards have been reconstituted to a very important degree since the war and in recent years, either with plants giving big yields or with plants capable of resisting cryptogamic disease and often, especially in the Garonne basin with direct hybrids. Many of the plantations are only now giving full yields. These different factors show that, although acreage has hardly increased, productivity of the French vineyards has increased greatly, especially if compared with the last decennial period.

The number of vine cultivators who declared their crops is about the same as in 1934, and production not declared must be about 660 (800) million gallons. Stocks at the end of the year remained heavy, about 1,870 (2,245) million gallons as against 790 (950) million gallons for last year and represented almost 11 % of the resources existing at the beginning of the year 1934-35. The proportion of « blocked » quantities, in virtue of the decrees of 29th December 1933-34, was less (hardly 3 %). The total stocks which existed at the end of the past year exceeded by 62 (74) million gallons, or 3.4 %, those which existed at the end of the year 1934-35.

*Algeria*: In the tables above a revised but still provisional estimate of the vine crop will be found. The production of table grapes was good in the *département* of Alger, although it suffered from inclement weather.

In the vineyards, seasonal work is being carried on slowly but under good conditions.

The declarations concerning voluntary rooting up were sufficiently numerous towards the end of November and appeared to be continuing in December.

*French Morocco*: The good quality of the wines of this year's vintage is confirmed.

The condition of vines was satisfactory at the beginning of December. A new advance in growth took place at the beginning of November, but it was of short duration. Tilling and the last pruning were about to be begun at the end of November.

*Tunisia*: 60,200 centals of grapes of the last harvest were consumed fresh, this refers probably to wine grapes from European vineyards.

The crop condition of the vines was good on 1; December; ripening was generally good but there were traces of a strong attack of oidium. Pruning was begun.

## OLIVES

*Palestine*: The olive picking has been concluded in the majority of Sub-Districts, but in the Acre and Safad hills is now in full swing. Crop is slightly better than that of last season. A slight attack of *Dacus oleae* is reported.

*Algeria*: The deficit in the production of olives for preserving and for olive oil was due to the difficulties of disposal encountered by producers. In November,

heavy rain fell in the olive growing area. Growth and maturation of the olives was proceeding under good conditions at the end of the month. The olive fly, as usual, caused some damage.

*French Morocco:* The harvest was commenced in the North, and it appears that this year's crop is greater than last year's although it was only up to the average. The harvest in the south was almost finished where it was very much smaller and in some cases nil.

### *Olive and Olive-oil Production.*

Countries	Area				English Measures			American Measures			% 1935-36	
	1935/ 1936	1934/ 1935	Aver. 1929/ 1930 à 1933/ 1934	% 1935-36	1935/ 1936	1934/ 1935	Aver. 1929/ 1930 à 1933/ 1934	1935/ 1936	1934/ 1935	Aver. 1929/ 1930 à 1933/ 1934	1934/ 1935	Aver
	Thousand acres				Thousand centals			Thousand (s) pounds (t) Amer. gal			= 100	= 100
Spain . . . .	...	4,708	4,641	...	(s) 43,920	34,812	40,782	4,391,966	3,481,184	4,078,214	126.2	107.7
France . . . .	—	—	—	—	(t) 8,494	6,901	7,871	111,614	90,688	103,432	123.1	107.9
Greece 1) . . .	—	—	—	—	(s) 1,026	871	803	102,559	87,129	80,313	117.7	127.7
Italy . . . 1a	...	2,002	1,781	...	(s) ...	2,702	2,294	...	79,001	67,493	...	...
Portugal . . .	...	3,152	3,543	...	(t) ...	29,505	28,156	...	35,511	30,139	...	...
Syria & Leb. .	...	1,189 2)	1,185	...	(s) ...	4,782	4,472	...	2,950,494	2,815,566	...	...
Algeria . . . .	...	170 4)	168	...	(t) 992	486	1,199	13,037	6,382	15,751	204.3	82.8
Tunis . . . .	—	—	—	—	(s) ...	1,025	1,315	...	102,515	131,516	...	...
					(t) ...	249	266	...	3,274	3,502	...	...
					(s) 121	184	255	12,125	18,425	25,491	65.8	47.6
					(t) 1,896	2,523	2,996	189,600	252,272	299,590	75.2	63.3
					(s) 242	324	380	3,184	4,257	4,989	74.8	63.8
					(t) 1,213	1,213	1,021	15,934	15,934	13,413	100.0	118.8

s) Olives. — t) Oil. — a) Pure crop — b) Mixed crop. — 1) Olive production refers to table olives. — 2) Year 1933-34. — 3) Including 4,432,306 cultivated olive trees out of a total of 9,400,060, or 47.2 %. — 4) Year 1933-34; including 4,405,343 cultivated olive trees out of a total of 9,398,273, or 46.8 %. — 5) Olives for preserving — 6) Olives for oil. For 1935-36 approximate figure calculated from average yield of oil

*Tunisia:* Picking of olives began in the south at the end of November. The drought still prevailed at the beginning of November, impeding ripening and the growth of fruit in the 4th. region (Susa), where the trees are light, some even bearing no fruit, and where many poorly tended plantations are infested with couch grass. The situation is, on the whole, better in the 5th. region; there is a good crop in the Sfax district and a poor or average yield in the remainder of this territory; picking was proceeding slowly at the beginning of December, growth being rather backward. The picking in the 2nd. and 3rd. regions appears to have been plentiful.

Conditions of the trees was, on the whole, good. Pruning began in the south.

### COTTON

*U. S. S. R.:* According to information supplied by the Central Cotton Committee of the U. S. S. R. on 26 November, the State cotton buying plan was completely realised 20 days before the established date. The State acquired 33,406,000 centals (6,989,000 bales) of unginned cotton, an increase of 7,496,000 centals (1,568,000 bales)

or 29 %, on the quantity acquired during last year. On 5 December, the purchases of unginned cotton, according to the information of the above-mentioned Committee, reached 105.7 %, of the figure fixed by the plan for the irrigated regions and 88.1 % for the non-irrigated regions which have been newly devoted to cotton growing. For all countries together cotton purchases reached 104.6 % of the figure fixed under the plan.

According to the declarations of the People's Commissar for Agriculture the total production of ginned cotton this year was 11,917,000 centals (2,493,100 bales) as against 8,306,000 centals (1,737,600 bales) for last year.

For the whole Union the yield of unginned cotton per acre is estimated at 7.6 centals (1.6 bales) as against 5.4 (1.1) for last year. The quality of the cotton is better this year than last; last year first quality represented 49 % of the crop, as against 90 % this year. More than 50 % of the cotton delivered to the State this year was about 1 inch length.

*United States:* Cotton production estimate as of 1 December, is about 3.7 % below the 1 November estimate. The crop as estimated is, however, about 1,098,000 bales more than last year's crop. The estimated acreage harvested is about 1.3 % above the area harvested in 1934. Allowing for an estimated abandonment of 1.9 %, the cotton acreage under cultivation on 1 July, 1935, is indicated now as 27,872,000 acres. The acreage estimates in the December report are approximately 5 % less than the preliminary estimates published in the early reports. These acreage revisions are based primarily on consideration of measurements made in connection with checking in compliance with the *Agricultural Adjustment Administration*, Cotton Adjustment Contracts. Most of the decrease in the production estimates as compared

### Cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1935/36	1934/35	Average 1929/30 to 1933/34	% 1935/36		1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	1935/ 1936	1934/ 1935	Average 1929/30 to 1933/34	% 1935/36	
				1934/ 1935	Aver- age							1934/ 1935	Aver- age
1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb.			= 100	= 100	
Bulgaria. . . . .	89	48	22	185.7	400.8	186	85	28	39	18	6	218.3	666.8
Greece 1) . . . . .	2) 133	91	54	146.2	246.9	2) 297	173	95	2) 62	36	20	172.0	314.6
U. S. S. R. . . . .	4,821	4,787	4,447	100.7	108.4	11,917	8,306	8,116	2,493	1,738	1,698	143.5	146.8
Brazil: Nor States	3) 3,000	1,729	1,366	173.5	219.7	5,192	3,572	1,962	1,086	747	410	145.4	264.6
United States 5) .	27,331	26,987	38,024	101.3	71.9	51,309	46,060	68,737	10,734	9,636	14,380	111.4	74.6
Mexico . . . . .	6) 585	418	364	140.0	160.9	*) 1,121	1,066	952	6) 235	223	199	105.2	117.8
China . . . . .	6) 5,388	6,828	5,484	78.9	98.2	11,183	14,930	10,842	2,340	3,123	2,268	74.9	103.1
Chosen . . . . .	514	474	445	108.3	115.5	832	650	636	174	136	133	128.1	130.9
India 7) . . . . .	24,130	22,605	22,524	106.7	107.1	21,408	18,196	18,124	4,479	3,807	3,792	117.7	118.1
Turkey . . . . .	...	486	432	...	...	2) 970	775	406	2) 203	162	85	125.2	239.0
Egypt . . . . .	1,733	1,798	1,766	96.4	98.1	*) 8,365	7,483	7,269	*) 1,750	1,566	1,521	111.8	115.1
Eritrea . . . . .	3	13	7	26.9	46.1	3	6	5	1	1	1	47.8	50.9
* Uganda . . . . .	1,367	1,171	886	116.7	154.3	...	980	885	...	205	185	...	...
TOTALS . . . . .	68,213	66,264	74,935	102.9	91.0	112,783	101,302	117,172	23,596	21,193	24,513	111.3	96.3

\* Not included in the totals. — 1) Area sown. — 2) Unofficial estimate. — 3) Conjectural estimate. — 4) First estimate. — 5) See *Summary of Government's Cotton Reports*. — 6) Second estimate. — 7) Third estimate.

with the November report occurred in Texas and Oklahoma, where conditions have been unfavourable for the maturing and picking of the late crop.

During the week ended 4 December, after rains earlier in the week, conditions became more favourable for the picking of the cotton crop in the north-western portion of the belt. Much snapping was accomplished in Oklahoma, but further damage was reported to open cotton remaining in the fields. A considerable amount remained unpicked in Eastern Arkansas.

*Summary of Government's Cotton Reports, by cotton seasons:*

	Provisional estimates for dates indicated 1935/36	Final estimates		Percent. 1935/36	
		1934/35	Average 1929/30 to 1933/34	1934/35 = 100	Aver- = 100
<i>Report referred to 1 July:</i>					
Area in cultivation (acres) . . . . .	24,166,000	27,883,000	40,860,000	104.6	71.4
<i>Report referred to 1 August:</i>					
Area left for harvest (acres) . . . . . (1) 28,480,000	(2) 26,987,000	(3) 38,024,000	105.5	74.9	
Crop condition (per cent. of normal) . . . . . 73.6	60.4	(4) 68.7	—	—	
Production (5) . . . . . 11,798,000	9,636,000	14,380,000	122.4	82.0	
Yield of lint per acre, in lb. . . . . 198.3	170.9	(4) 177.1	116.0	112.0	
Cotton ginned to 1 August (6) . . . . . 94,241	99,787	82,957	94.4	113.6	
Cotton ginned to 16 August (6) . . . . . 316,930	354,724	335,834	89.3	94.4	
<i>Report referred to 1 September:</i>					
Area left for harvest (acres) . . . . . (7) 28,652,000	(2) 26,987,000	(3) 38,024,000	106.2	75.4	
Crop condition (per cent. of normal) . . . . . 64.5	53.8	(4) 59.2	—	—	
Production (5) . . . . . 11,489,000	9,636,000	14,380,000	119.2	79.9	
Yield of lint per acre, in lb. . . . . 192.0	170.9	(4) 177.1	112.3	108.4	
Cotton ginned to 1 September (6) . . . . . 1,132,739	1,402,835	1,255,081	80.7	90.3	
Cotton ginned to 16 September (6) . . . . . 2,318,395	3,129,794	2,985,637	74.1	77.7	
<i>Report referred to 1 October:</i>					
Crop condition (per cent. of normal) . . . . . 64.0	55.9	(4) 57.9	—	—	
Production (5) . . . . . 11,464,000	9,636,000	14,380,000	119.0	79.7	
Yield of lint per acre, in lb. . . . . 191.5	170.9	(4) 177.1	112.0	108.1	
Cotton ginned to 1 October (6) . . . . . 4,230,367	4,962,384	5,672,176	85.2	74.6	
Cotton ginned to 18 October (6) . . . . . 6,551,799	6,743,904	8,752,764	97.7	75.3	
<i>Report referred to 1 November:</i>					
Production (5) . . . . . 11,141,000	9,636,000	14,380,000	115.6	77.5	
Yield of lint per acre, in lb. . . . . 186.1	170.9	(4) 177.1	108.9	105.1	
Cotton ginned to 1 November (6) . . . . . 7,749,635	7,917,671	10,696,441	97.9	72.5	
Cotton ginned to 14 November (6) . . . . . 8,437,084	8,634,632	11,968,466	97.7	70.5	
<i>Report referred to 1 December:</i>					
Area in cultivation, on 1 July (acres) . . . . . 28,872,000	27,883,000	40,860,000	100.0	68.2	
Area left for harvest (acres) . . . . . (8) 27,331,000	(2) 26,987,000	(3) 38,024,000	101.3	71.9	
Production (5) . . . . . 10,734,000	9,636,000	14,380,000	111.4	74.6	
Yield of lint per acre, in lb. . . . . 188.0	170.9	(4) 177.1	110.0	106.2	
Cotton ginned to 1 December (6) . . . . . 9,362,000	9,019,544	12,890,027	103.8	72.6	
Cotton ginned to 15 December (6) . . . . . 9,755,000	9,173,295	13,301,618	106.4	73.4	

(1) Area in cultivation on 1 July, less the ten-year, 1925-34, average abandonment, about 2.4 per cent. — (2) Area actually harvested; per cent. of abandonment about 3.2. — (3) Area actually harvested; the per cent. of abandonment, about 1.7, does not take into account about 10 1/2 million acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts. — (4) Ten-year, 1924-33, average. — (5) In bales of 478 lb. net weight and exclusive of linters. — (6) In running bales, counting round bales as half-bales and exclusive of linters. — (7) Area in cultivation on 1 July, less 1.8 per cent. of abandonment. — (8) Abandonment, 1.9 %.

*Haiti:* Total exports of cotton during the past commercial year (October 1934 to September 1935) were 136,200 centals (28,500 bales), against 116,800 centals (24,400 bales) for the year 1933-34.

*India:* In the Central Provinces during the second and third decades of November and the first week of December the weather was clear and cool. Cotton was suffering from lack of rain. Picking was progressing.

In Madras heavy rains fell during the first half of November in the Carnatic and the south of the Presidency. In the second part of the month, rain was moderate, while in the first week of December there was no rain. Crop condition was fair except in a few areas where the crops were affected by want of rain.

In the Punjab dry conditions predominated except for light rains in localised areas. Some damage from bollworm and premature bursting of cotton was reported in Lyallpur.

*French West Africa:* The figures of the last harvest are not known but it is known that efforts for the extension and improvement of the cotton crop have been actively made in all the productive areas. On the Ivory Coast the area devoted to cotton at the end of 1934 was  $\frac{1}{3}$  greater than that in 1933.

*Egypt:* Cotton ginned up to the end of November, in bales of 478 lb. net weight:

Varieties	1935	1934	1933	1932	1931	1930	1929
Sakellandis . . . . .	93,540	83,540	91,180	103,390	121,540	163,410	226,180
Other varieties above							
I $\frac{3}{4}$ " . . . . .	204,570	117,890	98,010	57,370	561,880	588,780	622,940
I $\frac{1}{4}$ " . . . . .	24,350	23,590	30,470	41,330			
I $\frac{1}{8}$ " . . . . .	741,930	630,700	639,680	321,560			
Total . . . . .	1,064,390	855,720	865,340	524,650	613,420	752,190	849,260
Scarto (linters) . . . . .	21,580	16,860	16,370	11,770	17,100	16,550	18,440
—							
Total production (including Scarto) . . . . .	*) 1,750,000	1,565,600	1,776,900	1,027,000	1,317,300	1,714,900	1,767,800

\*) Second estimate

*Nigeria:* In October good rains fell in the North benefiting the cotton crop which was progressing satisfactorily. Exports of ginned cotton for the first nine months of this year amounted to 242,000 centals (50,700 bales of 478 lb.) as compared with 125,000 (26,200) for the corresponding period of last year. Percentage 193 2

*Uganda:* A continued improvement in the condition of the crop took place during October, and prospects at the end of the month were better than at the corresponding date last year.

*Tanganyika:* The Mwanza crop exceeded 148,000 centals (31,000 bales of 478 lb.) as compared with 88,000 (18,400) in 1934. Percentage 168 2.

*Union of South Africa:* The total number of cotton bales graded for the Union and Swaziland this season to the end of October is 2,051 as compared with 2,007 for the same period last year.

## THE WORLD LINSEED STATISTICAL SITUATION

France and Poland have just communicated their respective estimates of the area devoted this year to flax. These estimates confirmed the general tendency, to be seen on the continent of Europe, of a progressive revival in the crop, which, after reaching a record high point in 1928, underwent a continuous contraction until 1932. France has also communicated the estimate of her production which exceeds appreciably (17.8 %) that of last year and slightly exceeds the average. However, the increase is not in the same proportion as the



## Flax

COUNTRIES	1) AREA					1) PRODUCTION							
	1935	1934	Aver. 1929 to 1933	% 1935 — 1933/36		1935	1934	Aver. 1929 to 1933	1935	1934	Aver. 1929 to 1933	% 1935 — 1933/36	
	—	—	—	—	—	—	—	—	—	—	—	—	—
	1935/36	1934/35	1929/30 to 1933/34	1934 1935	Aver- age 1935 = 100	1935/ 1936	1934/ 1935	1929/30 to 1933/34	1935/36	1934/35	1929/30 to 1933/34	1934 1935	Aver. 1934/ 1935 = 100
	1,000 acres					1,000 centals			1,000 pounds				

## Fibre.

Germany 1) . . .	55	22	20	253.7	277.1	1,378	592 <sup>a)</sup>	343	137,778	59,210 <sup>a)</sup>	34,335	232.7	401.4
Austria 3) . . .	5	5	7	103.0	62.9	67	70	103	6,702	7,047	10,251	95.1	65.3
Belgium . . .	46	35	42	129.4	109.7	617	482	302	61,730	48,172	30,209	128.1	203.9
Bulgaria . . .	6	3	1	205.7	546.8	8	7	2	786	701	222	112.2	354.5
Estonia . . .	73	53	56	137.7	128.6	225	156	156	22,475	15,618	15,623	143.9	143.9
*Finland 4) . . .	12	11	9	101.4	129.4	...	37	28	...	3,664	2,799	...	...
France . . .	82	57	54	143.5	152.2	486	323	356	48,554	32,334	35,595	150.2	136.4
*N. Ireland . . .	28	16	17	177.0	161.9	...	82	76	...	8,236	7,605	...	...
*Hungary . . .	8	8	—	104.0	—	27	27	—	2,674	2,666	—	100.3	—
Latvia . . .	168	114	110	146.7	152.7	587	357	335	58,662	35,671	33,510	164.5	175.1
Lithuania 4) . . .	227	150	159	151.6	143.3	792	478	514	79,184	47,794	51,360	165.7	154.2
Netherlands . . .	23	15	24	150.5	97.5	148	120	158	14,771	11,980	15,769	123.3	93.7
*Poland . . .	306	262	261	116.9	117.1	...	679	874	...	67,944	87,364	...	...
*Romania . . .	79	63	51	124.6	153.9	...	166	108	...	16,607	10,791	...	...
Czechoslovak . . .	33	23	27	141.3	122.8	153	122	112	15,272	12,246	11,237	124.7	135.9
*U. S. S. R. 5) . . .	5,115	5,214	5,276	98.1	97.0	...	11,685	10,582	...	1,168,454	1,058,222	...	...
Egypt . . .	5	5	3	92.8	155.2	29	32	21	2,932	3,192	2,069	91.8	141.7
TOTALS . . .	723	482	503	148.7	142.9	3,388	2,265	2,128	338,624	226,597	212,712	149.2	159.2

## Linseed

									1,000 bushels of 56 pounds				
Germany . . .	55	22	20	253.7	277.1	256	140 <sup>a)</sup>	70	457	249 <sup>a)</sup>	125	183.3	366.5
Austria . . .	3	3	4	102.8	72.0	11	12	16	20	21	29	97.6	70.8
Belgium . . .	46	35	42	129.4	109.7	203	160	212	362	286	378	126.6	95.7
Bulgaria . . .	6	3	1	205.7	546.8	26	8	5	46	14	8	320.9	546.5
*Estonia . . .	73	53	56	137.7	128.6	...	162	176	...	290	314	...	...
France . . .	82	57	54	143.5	152.2	283	240	276	506	429	493	117.8	102.5
*Hungary . . .	31	30	—	104.6	—	164	141	—	292	251	—	116.3	—
*Italy . . .	11	11	18	104.8	61.9	...	46	99	...	82	177	...	...
Latvia . . .	168	114	110	146.7	152.7	520	334	333	928	597	594	155.5	156.1
Lithuania 4) . . .	227	150	159	151.6	143.3	862	568	638	1,539	1,014	1,140	151.7	135.0
*Poland . . .	306	262	261	116.9	117.1	...	1,221	1,217	...	2,180	2,173	...	...
Romania . . .	79	63	51	124.6	153.9	253	205	223	452	365	398	123.8	113.8
Czechoslovakia . . .	33	23	27	141.3	122.8	124	94	87	222	168	155	132.3	142.6
*U. S. S. R. 6) . . .	5,744	5,814	6,576	98.8	87.3	...	15,432	16,811	...	27,558	30,021	...	...
Canada . . .	215	227	463	94.8	46.4	802	510	1,450	1,433	910	2,589	157.4	55.3
United States . . .	2,071	969	2,500	213.7	82.8	8,361	2,919	7,573	14,931	5,213	13,523	286.4	110.4
India . . .	3,381	3,261	3,096	103.7	109.2	9,363	8,422	8,534	16,720	15,040	15,240	111.2	109.7
Egypt . . .	5	5	3	92.8	155.2	35	42	22	62	74	40	84.1	156.7
Eritrea . . .	2	6 <sup>a)</sup>	3	40.8	81.1	13	24 <sup>a)</sup>	19	24	43 <sup>a)</sup>	34	54.5	70.4
Argentina . . .	6,573 <sup>a)</sup>	8,103 <sup>a)</sup>	7,499 <sup>a)</sup>	81.1	87.6	28,219	44,644	38,306	50,392	79,721	68,404	63.2	73.7
*Uruguay . . .	5,170 <sup>a)</sup>	7,105 <sup>a)</sup>	6,303 <sup>a)</sup>	72.8	82.0	...	1,905	1,958	...	3,402	3,496	...	...
TOTALS . . .	11,543	12,043	12,836	95.8	89.9	49,331	58,322	57,764	88,094	104,144	103,150	84.6	85.4

<sup>a)</sup> Countries not included in the totals. — 1) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 2) Production expressed in dry stalks (flax and straw). The corresponding figures in flax included in the totals are as follows: 1935 — 27,556,000 lb.; 1934 — 11,842,000 lb.; average — 6,867,000 lb. — 3) Production expressed in terms of air-dried stalks. — 4) Flax and hemp. — 5) "Dolgunetz" variety. — 6) Total area (including that for flax). — 7) Total area, according to the Plan. — 8) Average 1931 to 1933. — 9) Area sown. — 10) Area harvested.

increase in the area because of the abnormally cold weather which was experienced during May and which impeded sprouting. Among the European countries which have not yet communicated their estimates of production are Poland, which after the U. S. S. R. is the most important flax producer on the continent, the Netherlands and others of less importance. The information available at the present time on the general course of the season indicates that the crops of these countries will be greater than those of last year. For Europe as a whole, not including U. S. S. R., the 1935 crops, according to the available estimates, exceed last year's, and with the exception of those of Austria and Belgium are also greater than the average.

For the U. S. S. R. there is still no estimate, the figure established by the plan is almost the same as that of 1934, but it is 12.7 %, smaller than the average for the last five years. It should be borne in mind that the production of linseed in U. S. S. R. has no importance from the point of view of international trade as it is absorbed almost entirely within the country.

At the beginning of December the Government of Argentina published the second estimate of the acreage sown to flax during the present year and an increase of 445,000 acres on the preceding figure was shown. On 21 December the Ministry of Agriculture in Buenos Aires communicated by cable the first estimate of production for linseed, placing the expected outturn at 28,220,000 centals (50,400,000 bushels) compared with 40,350,000 centals (72,040,000 bushels) on the same date last year and a final estimate for 1934 of 44,650,000 centals (79,720,000 bushels).

*Area, production and yields of linseed in Argentina*

YEARS	AREA			PRODUCTION			
	sown	harvested	% of sown area harvested	total		per acre harvested	
	1,000 acres	1,000 acres	%	1,000 centals	1,000 bushels	centals	bushels
1926	6,200	6,062	97.8	42,064	75,115	6.9	12.4
1927	7,290	6,227	85.4	45,239	80,784	7.2	12.9
1928	7,055	6,773	96.0	46,297	82,674	6.9	12.3
1929	6,944	6,568	94.6	43,892	78,379	6.7	11.9
1930	7,092	5,231	73.8	28,003	50,006	5.4	9.6
<i>Average 1926/30</i>	<i>6,916</i>	<i>6,172</i>	<i>89.2</i>	<i>41,099</i>	<i>73,392</i>	<i>6.7</i>	<i>11.9</i>
1931	7,512	6,749	89.8	43,872	78,343	6.5	11.6
1932	8,641	8,263	95.6	49,917	89,138	6.0	10.8
1933	7,401	6,395	86.4	34,723	62,005	5.4	9.7
1934	6,855	4,878	71.2	35,054	62,596	7.2	12.8
1935	8,103	7,104	87.7	44,644	79,721	6.3	11.2
<i>Average 1931/35</i>	<i>7,702</i>	<i>6,678</i>	<i>86.7</i>	<i>41,642</i>	<i>74,361</i>	<i>6.2</i>	<i>11.1</i>
1936	6,573	5,170	78.6	28,219	50,392	5.5	9.7

Production this year is also very much smaller than the average for the 5 year period 1929-33 which was 38,300,000 centals (68,403,000 bushels). The small Argentine production is partly due to the reduction in the area sown which is about 20 % compared with last year. It is also partly due to the exceptional

and prolonged drought, which after having hindered preparatory work and sowing, resulted in a slow and uneven germination and incomplete growth of the plants, principally in the provinces of Entre Ríos, Santa Fé and Córdoba.

Taking these circumstances into account and counting on a normal course of the season during the last two months preceding the harvest, we estimated in the October *Crop Report* that the Argentine production of linseed would be between 29 million centals (51 million bushels) and 31 million centals (55 million bushels), that is, 2 to 4 million centals (4 to 8 million bushels) smaller than the estimates made in commercial quarters. The present official estimate, which almost confirms our forecast, is nearly equal to the final estimate to the crop of 1929-30, a very unfavourable season when a high proportion of the acreage was destroyed and the yield was very low. The difference between the acreage sown and that harvested during the present year is 21.4 % against 12.3 %, in 1934 and a 5 year average of 16.7 %. The yield of 5.4 centals (9.7 bushels) per acre of the area harvested is the lowest for the last ten years, if that of 1929-30 is excepted which fell to less than 5.4 (9.6), while for the preceding year the figure was 6.2 (11.2) and the average was 6.1 (10.8).

According to an enquiry made by the Ministry of Agriculture in Buenos Aires, which placed the Argentine crop for 1934-35 at 44,640,000 centals (79,720,000 bushels) an increase of 1,480,000 (2,640,000) on the preceding estimate. The export surplus, taking into account the quantity absorbed by the home linseed oil industry [(estimated at 660,000 (1,200,000) in 1935 against 330,000 (590,000) in 1934)] and the quantity required for seed, was 7,610,000 (13,580,000).

*Production and export of linseed in Argentina.*

YEARS	Production	EXPORT					
		first quarter	second quarter	third quarter	fourth quarter	Total	
						absolute	% of pro- duction
(1,000 centals)							
1926 . . . . .	42,064	11,308	12,245	7,238	6,096	36,887	87.7
1927 . . . . .	45,239	12,588	11,175	8,580	9,645	41,988	92.8
1928 . . . . .	46,297	14,008	9,209	10,351	9,299	42,867	92.6
1929 . . . . .	43,892	14,877	10,016	6,618	4,149	35,660	81.2
1930 . . . . .	28,003	10,520	4,661	4,400	6,204	25,785	92.1
Average 1926/30 . . . . .	41,099	12,660	9,461	7,437	7,079	36,637	89.1
1931 . . . . .	43,872	14,112	8,596	10,256	8,490	41,454	94.5
1932 . . . . .	49,917	13,466	9,019	11,636	10,580	44,701	89.6
1933 . . . . .	34,722	11,651	7,185	5,968	5,891	30,695	88.4
1934 . . . . .	35,054	12,194	5,027	6,118	6,962	30,301	86.5
1935 . . . . .	44,644	13,902	8,547	8,325	...	...	...
Average 1931/35 . . . . .	41,642	13,065	7,675	8,461	...	...	...
1936 . . . . .	28,219	...	...	...	...	...	...

It can thus be seen that the disposal of the large Argentine crop of linseed of 1934-35 has been very brisk, reaching during the first nine months of the

present year about 31 million centals (55 million bushels), against 23.4 (41.7) millions at the same date last year and an average of 29.5 (52.8) millions for the same periods of the years 1929-30.

On the basis of the production forecast, taking into account the quantities absorbed internally, and for seeding and the probable stocks of the past year, it is possible to estimate that the amount available for export from Argentina will be about 26 million centals (47 million bushels).

In North America the present crop year has been characterized, as in Europe, by an expansion of the crop and the season has been much more favourable than that of 1934 which was very bad. The latest estimate, made in December, for the United States shows an increase of about 470,000 centals (838,000 bushels) on the previous figure of the beginning of October, and confirms the indication that production will be much greater (186.4 %) than that of 1934 and will exceed the average by 10.4 %.

According to the estimate made in October, which will be revised only next month, the Canadian crop appears to be much greater (79.7 %) than the small one of 1934, but still less than the average (36.8 %) because of the reduction in acreage (53.6 %).

For the two North American countries together, total production of linseed amounts to about 9,280,000 centals (16,570,000 bushels), an increase of 170.7 %, on the 3,430,000 (6,122,000) of 1934 and 2.8 % on the average production for the five preceding years, estimated at 9,020,000 (16,114,000).

The crop of 1935 in India, which occupies second place among exporting countries of linseed, is greater (11.2 %) than that of the previous year and also greater than the average (9.7 %), owing to the increase in the acreage of 3.7 %, compared with last year and 9.2 %, compared with the average.

*Area and production in and exports from India*

YEARS	Area	Production	EXPORTS					
			first quarter	second quarter	third quarter	fourth quarter	Total absolute	% of production
	1,000 acres		(1,000 centals)					
1926 . . . . .	3,595	9,004	496	1,142	1,292	1,246	4,176	46.4
1927 . . . . .	3,331	9,094	620	1,239	1,596	1,400	4,855	53.4
1928 . . . . .	3,311	7,796	747	1,204	1,078	798	3,827	49.1
1929 . . . . .	3,111	7,211	432	1,250	2,368	1,554	5,604	77.7
1930 . . . . .	2,802	8,512	388	3,029	1,898	538	5,853	68.8
Average 1926/30 . . . .	3,230	8,323	537	1,573	1,646	1,007	4,863	58.4
1931 . . . . .	3,010	8,446	280	948	606	681	2,519	29.8
1932 . . . . .	3,062	9,317	459	423	390	456	1,728	18.6
1933 . . . . .	3,301	9,094	346	1,111	3,274	3,051	7,782	85.6
1934 . . . . .	3,262	8,422	1,052	2,019	1,739	1,347	6,157	73.1
1935 . . . . .	3,380	9,363	214	1,005	282	...	...	...
Average 1931/35 . . . .	3,203	8,928	470	1,101	1,258	...	...	...

The Indian exports of linseed during the first nine months of the present year showed a very appreciable reduction, amounting to barely 1,500,000 centals (2,681,000 bushels), or less than  $\frac{1}{3}$  of the quantity exported during the same period last year [4,810,000 (8,590,000)]. This quantity is distinctly smaller than the corresponding average exports for the period 1926-30, estimated at 3,750,000 centals (6,704,000 bushels). This year, as in 1930, producers have voluntarily reduced the quantities on offer, preferring to stock their product and to wait for a better price on the international market.

The information which is available up to the present indicates that weather conditions have been favourable during the sowing of the new crop in the principal growing centres of the country. Germination and growth of the plants have been normal, but the results of the crop depend on the weather conditions of the next quarter, particularly on the winter rains.

For Uruguay, there is no estimate of production. The second estimate of the area devoted this year to flax only is known, and this is equal to that of last year and greater than the average by 9 %. The last report published by the Government of Uruguay indicates that, after having suffered from a drought which was practically uninterrupted until October, the crops improved after the heavy rains which followed in the principal production centres. Nevertheless, there have been complaints in many regions about the very serious damage done by grasshoppers.

The African linseed crop, and particularly that of Morocco, which is the most important producer in Africa, appears to be very poor, owing to the very serious damage caused by drought in the spring.

On the basis of the estimates available at the present time which represent 90 % of the total world production, it is estimated that the latter (U. S. S. R. not included) will be between 53 and 55 million centals (94 and 98 million bushels) compared with 62.4 (111.4) millions in 1934 and 62.2 (111.0) millions on the average of the last five years.

*The situation in the principal linseed importing countries.* — The net imports of linseed during the first 10 months of the present year show for all European countries, with the exception of Germany, Finland and Sweden, a marked increase compared with the same period for last year. The greatest increase, about  $\frac{1}{3}$ , is shown in the Netherlands which occupies first place in Europe in the linseed oil industry.

Among the importing countries outside Europe, there has been a tendency for them to increase their purchases. This tendency was accentuated during the present year, particularly in North America, Australia and Japan. In spite of the much better crops obtained this year, the imports of these countries have not been reduced during the August-October quarter of the present year.

The prices of "La Plata" linseed in London, with delivery at Hull, since September of last year fell continuously until they reached the lowest level for a long series of years in March and July of the present year. During the August-October quarter, because of the very bad Argentine crop, prices reacted favour-

*Net imports of linseed of the principal European and extra-European countries.*  
(1,000 centals)

COUNTRIES	1935		1934		1933		1932		1931		Average 1926/30	
	Production	Net import 1)	Production	Net import	Production	Net import	Production	Net import	Production	Net import	Production	Net import
<b>I. — European countries.</b>												
Germany . . . . .	355	4,936	139	6,984	71	7,871	—	9,822	—	7,494	—	7,509
Netherlands . . . . .	...	7,736	106	7,031	77	6,468	29	9,837	77	9,204	227	7,492
Great Britain . . . . .	—	4,526	—	4,107	—	5,505	—	8,111	—	7,568	—	7,001
France . . . . .	282	4,967	240	5,236	104	5,820	126	5,194	130	5,796	412	4,290
Belgium . . . . .	203	2,046	161	1,722	134	2,685	112	3,532	183	3,497	278	2,106
Italy . . . . .	...	1,217	46	1,422	51	1,653	68	1,512	104	1,351	174	1,368
Sweden . . . . .	...	747	0	849	2	776	2	957	2	1,056	2	838
Czechoslovakia . . . . .	123	467	95	556	60	300	53	796	55	575	163	500
Poland . . . . .	...	0	1,221	170	994	284	919	269	1,087	267	1,477	187
<i>Total . . . . .</i>	...	26,642	2,008	28,077	1,493	31,362	1,309	40,030	1,638	36,808	2,733	31,294
<b>II. — Extra-European countries.</b>												
United States . . . . .	8,360	8,186	2,919	7,934	3,890	7,743	6,537	4,434	6,607	8,109	11,206	11,072
Australia . . . . .	...	690	...	560	4	487	2	474	2	311	15	507
Japan . . . . .	...	379	...	432	82	472	49	148	68	185	75	243
<i>Total . . . . .</i>	...	9,255	...	8,926	3,976	8,702	6,588	5,056	6,677	8,605	11,296	11,822
<b>TOTAL OF BOTH GROUPS . . . . .</b>	...	<b>35,897</b>	...	<b>37,003</b>	<b>5,469</b>	<b>40,064</b>	<b>7,897</b>	<b>45,086</b>	<b>8,315</b>	<b>45,413</b>	<b>14,029</b>	<b>43,116</b>

1) Up to end of October.

ably, and the average price in October, in fact, was the highest of the year and was even slightly greater than the annual averages of the last three years.

*Prices of « La Plata » linseed in London (delivery Hull)*  
(Gold francs per quintal)

	Annual average	
1928 . . . . .	39.02	
1929 . . . . .	45.29	
1930 . . . . .	37.27	
1931 . . . . .	20.18	
1932 . . . . .	15.02	
1933 . . . . .	15.59	
	Monthly average	
	1935	1934
January . . . . .	14.20	11.19
February . . . . .	13.83	14.04
March . . . . .	13.38	14.54
April . . . . .	13.95	15.07
May . . . . .	14.12	16.78
June . . . . .	13.87	16.52
July . . . . .	13.75	15.84
August . . . . .	14.00	16.82
September . . . . .	14.64	15.63
October . . . . .	15.85	14.89
November . . . . .	14.90	14.17
December . . . . .	...	14.28

Prices on the home market in Argentina with delivery Buenos Aires, since November 1933, were higher than the minimum price fixed by the Government of 11.50 paper pesos per quintal, so that the purchases of the Grain Control Commission, created by the decree of 28th November, have been almost negligible.

A. DI FULVIO

## FLAX

*Great Britain and Northern Ireland:* The scutching of the flax crop in Northern Ireland continued during the month with good results. Some very high yields have been obtained from the pure line varieties and it is estimated that the average yield per acre for this season's crop will be higher than last year. The quality of the fibre is generally considered to be good.

*U. S. S. R.:* On 1 December, the purchasing plan for flax for fibre was carried out to the extent of 77.5%.

*Argentina* The last monthly report, published on 22 November by the Department of Rural Economy and Statistics of the Ministry of Agriculture in Buenos Aires, contains the following information on crop condition of flax in the different regions of the country.

*Province of Buenos Aires.*— In the north-eastern regions, prospects were good, whereas along the banks of the Paraná a reduced harvest was expected. In the western regions the crops were in full flower and, on the whole, crop condition was satisfactory. To the south, the prospects were progressively worse. In the Bahía Blanca region part of the sowings were definitely lost.

The crop in the Province as a whole was late and its condition below average.

*Province of Santa Fé.*— The rains towards the middle of November appreciably improved crop condition everywhere. In spite of this, growth was late, particularly in the north where very small yields were expected, varying between 1.8 centals (3.2 bushels) and 2.7 centals (4.8 bushels) per acre. There were complaints of grasshoppers in various regions.

*Province of Córdoba.*— The progress of the crops was generally uneven, except in the eastern and south-western regions, where normal or slightly less than normal yields were expected. In the north of the province there were complaints of weeds.

*Province of Entre Ríos.*— The crop condition of flax was better than that of wheat. Prospects were better in the riverine areas of the Uruguay River, where flowering on the whole was normal.

*Province of Santiago del Estero.*— The crop was late. Rains improved the situation and an average harvest was expected.

In the Pampa Territory, crop condition was not satisfactory and there were complaints of weeds.

## HEMP

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver- age				1934	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	

## Fibre.

Germany 1) . . . .	9	1	1	983.6	1,034.5	—	—	—	—	—
Austria 2) . . . .	1	1	1	108.7	97.8	1,345	1,366	1,607	98.4	83.7
Bulgaria . . . . .	16	14	10	119.6	160.3	7,495	5,872	3,574	127.6	209.7
France . . . . .	8	7	8	112.0	91.8	7,679	6,371	8,435	120.5	91.0
Italy . . . . .	165	156	166	106.0	99.8	...	133,325	153,796	...	...
Poland . . . . .	85	80	79	106.0	107.3	...	22,935	34,515	...	...
Romania . . . . .	114	113	106	100.8	107.2	...	54,294	50,913	...	...
Czechoslovakia . .	18	18	20	100.4	90.8	10,553	13,244	11,335	79.7	93.1
U. S. S. R. . . . .	1,433	1,478	2,096	97.0	68.4	...	310,191	502,215	...	...

## Hempseed.

Austria . . . . .	3)	3)	3)	112.4	74.6	1	1	1	125.0	76.0
Bulgaria . . . . .	16	14	10	119.6	160.3	5,325	4,282	2,741	124.4	194.3
France . . . . .	8	7	8	112.0	91.8	990	1,588	2,591	62.3	38.2
Poland . . . . .	85	80	79	106.0	107.3	...	37,040	43,160	...	...
Romania . . . . .	114	113	106	100.8	107.2	...	41,870	35,193	...	...
Czechoslovakia . .	18	18	20	100.4	90.8	5,538	8,978	7,869	61.7	70.4
U.S.S.R. . . . .	1,433	1,478	2,096	97.0	68.4	...	499,790	731,937	...	...

1) Hemp and other textile plants. — 2) Production expressed in terms of air-dried stalks. — 3) Area less than 500 acres.

## HOPS

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver- age				1934	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
Germany . . . . .	25	24	28	105.8	91.0	18,942	14,427	19,500	131.3	97.1
Belgium . . . . .	2	2	2	98.2	100.1	3,748	2,824	2,318	132.7	161.7
France . . . . .	5	4	8	118.6	62.9	6,026	3,178	6,370	189.6	94.6
Engl. and Wales . .	18	18	19	101.2	94.1	27,810	29,008	26,544	95.9	104.8
*Poland . . . . .	8	7	1)	108.8	138.8		3,172	3,273	1)	...
Czechoslovakia . .	29	29	33	100.1	88.7	15,432	15,595	23,219	99.0	66.5
United States . . .	39	37	24	106.0	165.8	47,000	41,195	29,415	114.1	159.8
TOTALS . . . . .	118	114	114	102.1	104.3	118,958	106,222	107,366	111.8	110.9

\* Country not included in the totals — 1) Average 1929, 1932 and 1933.



## TOBACCO

*Irak:* Of the 3 millards of cigarettes which were approximately consumed in Irak, 95 % were supplied by the home industry. Tobacco growing, owing to the wise efforts of the government, has been no less progressive. Ten years ago the crop was nil and in 1934 it accounted for 98 %, of the consumption. For 1935 the crop is expected to be slightly smaller because of the bad weather and disease which attacked the plantations.

### *Tobacco.*

COUNTRIES	AREA					PRODUCTION				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver- age				1934	Aver- age
1,000 acres					1,000 pounds					
*Germany 1). . . .	31	30	26	103.8	122.2	...	76,897	55,110	...	...
Belgium . . . . .	8	8	7	106.8	117.1	15,873	16,263	14,531	97.6	109.2
Bulgaria . . . . .	86	55	75	155.4	114.3	60,684	46,685	58,643	130.0	103.5
Greece . . . . .	200	181	209	110.7	95.8	92,509	92,109	115,503	100.4	80.1
Hungary . . . . .	41	41	56	101.5	73.2	41,486	40,040	72,247	103.6	57.4
*Romania . . . . .	44	25	50	180.4	88.7	...	13,020	32,942	...	...
Czechoslovakia . . . .	24	25	21	94.7	112.7	27,812	30,165	28,180	92.2	98.7
Yugoslavia . . . . .	...	18	41	...	...	24,251	13,336	29,555	181.8	82.1
United States . . . .	1,458	1,271	1,848	114.7	78.9	1,284,000	1,045,660	1,431,450	122.8	89.7
Japan . . . . .	87	85	87	102.3	99.5	149,055	148,989	143,854	100.0	103.6
Turkey . . . . .	136	116	128	117.4	106.0	74,186	78,650	82,997	94.3	89.4
Algeria . . . . .	53	57	54	93.5	98.9	38,581	49,007	39,532	78.7	97.6
TOTALS . . . . .	2,111	1,857	2,526	114.2	83.5	1,808,437	1,560,904	2,016,492	115.8	89.7

\* ) Countries not included in the totals — 1) Production for sale. — 2) Unofficial data.

*Algeria:* Deliveries finished towards the end of November and the quality of the crop appears to be satisfactory. The yields obtained were average and probably lighter than those obtained last year. According to an estimate from private sources, production is about 39.7 to 40.8 million lb. against 48.9 million lb. for last year.

*Nyasaland:* In October, tobacco nurseries were progressing satisfactorily.

## OTHER PRODUCTS

### Cacao

*Brazil:* According to the Instituto do cacao da Bahia, the weather in October was favourable for harvesting and for the storage of cacao, the meteorological data for the month being as follows: average temperature 75° F (23.9° C.); relative dampness 96.1 %; rainfall 4.1 inches (104.3 mm.). As a result of these favourable conditions, the quality of the crop improved gradually and except in a few cases, it reached the standard of previous years. Difficulties with the entrance of the port of Ilheos still continued; however, contracts for shipment having diminished considerably, the anxiety

shown by exporters to receive cacao also decreased in the same proportion, and deliveries were being made in a normal manner.

Arrivals for October were 32 million lb. Shipments during the month were 36 million lb., bringing the total for May to October to 136 million lb. The Instituto do Cacao da Bahia estimated the total crop at about 231 million lb.

*French West Africa.* Figures of the last crop are not yet known, but it appears that they will exceed those for the preceding year, which were a record. It was estimated that the area planted, at the end of 1934, on the Ivory Coast, which is almost the only producer of the group, was 393,000 acres, rather more than twice that of 1933, with 152 million plants. This area, however, was not all in production, but the area in bearing continued to expand. The renewal of old plantations was being carried out very actively with superior varieties. In addition, very great progress was made in the preparation of the product and its quality is considered very satisfactory.

*Gold Coast: Major crop.*— The crop estimate given last month remains unchanged.

*Ashanti.*— In October harvesting was in full swing and the first pickings were heavy. Some difficulties were caused by rain to drying and marketing, but as the weather was improving, it was expected that the bulk of the crop would be prepared during November and December. 65 % of the crop was ripe at the end of the month and it was estimated that 80 % would be ripe at the end of November.

*Western Province.*— Conditions in October were similar to those experienced in September.

*Central Province.*— About 50 % of the crop was ripe at the end of September. Although the crop was rather late, marketing was proceeding rapidly.

*Eastern Province.*— The weather was unfavourable for drying, and hindered harvesting. In the Koforidua, Nsawam and Kwahu districts 50 % of the crop was ripe at the end of October and 80 % was expected by the end of November.

*British Togoland.*— Weather conditions were favourable for drying so that harvesting proceeded normally, and 25 % of the crop had been harvested by the end of October.

*Total crop.*— In October the average size of the beans inspected was 118.9 per 14 cubic feet or 97.0 per 4 ounces, while measured in millimetres the average was  $23.2 \times 12.3 \times 7.2$ . Purity was 90.3 %.

*Movement.*— The tonnage exported during October was second only to the record set up in 1932-33 and was due mostly to the abnormally large carry over of old main crop cacao. Movement statistics are as follows—

	Oct 1935	Oct 1934
	(million pounds)	
Railway offloadings, Takoradi . . . . .	12	12
Exports:		
Takoradi . . . . .	10	4
Accra . . . . .	21	11
All ports . . . . .	36	19

*New crop.*— It was estimated that about 50 million lb. had been marketed by the end of October. Movement had been free.

*Nigeria:* It was reported in October that the new cacao crop was coming in freely. The crop was estimated at about 157 million lb., or practically equal to the last main crop.

## Tea.

*India:* During October, the weather in North India was, on the whole, hot and dry and the lack of rain affected crop prospects adversely. In certain areas there were indications of an early close of the season: in South India, dull showery weather prevailed and prospects were fair. Statistics to the end of October in North India recorded a decrease of 13,928,600 lb. as compared with the outturn to the same date last year, while in South India an increase of 1.78 % was reported.

*Nyasaland:* Crop condition in October was satisfactory.

## Coffee.

*Guatemala:* For the year 1935-36 an abundant crop of coffee is expected, as the result of favourable climatic conditions during flowering in the principal productive centres.

*Haiti:* Total exports of coffee during the past commercial year (October 1934 to September 1935) were 419,500 centals against 780,200 centals for the year 1933-34. The great decline is due to the exceptionally bad harvest last year. For 1935-36 a very abundant production is expected.

*French West Africa:* The coffee crop continued to develop strongly in the different productive colonies of French West Africa, in French Guinea, in Dahomey and especially on the Ivory Coast. In Dahomey about a million plants were distributed for the present season. In Guinea efforts are being concentrated principally on the distribution of the *Arabica* variety; a new factory for the preparation of coffee has been set up. On the Ivory Coast, which is the principal production area, the acreage planted at the end of 1934 was 170,500 acres with 70 million plants. It is necessary to note that this area, which is considerably greater than that for other years, is not, however, all in production at present.

*Kenya:* In October the quality and quantity of the coffee crop were affected by drought in some areas, but in other areas conditions were more favourable and the quality had improved. However, prospects were uncertain owing to the lateness of the short rains.

## Groundnuts.

*United States:* According to the most recent estimate, area cultivated to groundnuts this year was about 1,642,000 acres against 1,571,000 in 1934 and 1,373,000 on the average of the five years ending 1933, percentages, 104.5 and 119.6. The corresponding production is estimated at about 1,264 million lb. (against 1,063 million lb. and 949 million lb.); percentages, 118.9 and 133.2.

*Java and Madura:* The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details concerning groundnuts area:—

	1935 acres	1934 acres
Area harvested in October . . . . .	56,300	50,600
Area harvested from 1 January 31 October . . .	417,100	427,300
Area of standing crop at the end of October . .	108,200	126,500

*French West Africa:* Information about the last harvest is not available. In Senegal, it is known that efforts were made to improve the crop; the quantity of select seeds — 1,050,000 centals — distributed by the native co-operative societies was increased during the year. There was also an important distribution of horse drawn machinery and the area cultivated by natives with the help of this was 24,700 acres compared with 18,500 acres in 1934 and an average of 11,000 acres, in the last three years. Efforts for an extension of the groundnut crop were also made on the Ivory Coast, and in the North an increase of 30 % in the sowings is anticipated. In Dahomey, selection of groundnuts was undertaken; rains was favourable during the sowing period. In French Sudan because of the distribution of seeds and the favourable weather conditions at the beginning of the crop year, it is hoped that exports for the year 1935-36 will reach 772,000 centals, against about 551,000 centals for the year 1934-35.

*Egypt:* Harvesting of early cultivations of groundnuts is over, while the remaining ones are being harvested. The yield is expected to be 8 % above the average.

### Colza and sesame.

*Germany:* Crop condition of winter colza on 1 December was, according to the system used by this country, 2.5.

*Austria:* Winter colza has progressed very well during the month of November. Its condition was 1.6 on 1 December, against 1.8 on the same date last year.

*Poland:* On 15 November, the crop condition of winter colza was 3.6 against 3.7 on 15 October and 3.8 on 15 November 1934.

*Romania:* The area under winter colza is smaller this year.

### Sericulture.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
				1934	Aver. age				1934	Aver- age
1,000 ounces			= 100	= 100	1,000 pounds			= 100	= 100	
Bulgaria . . . . .	24	28	33	87.5	73.4	2,646	3,053	3,713	86.7	71.3
France . . . . .	13	18	27	73.5	48.2	1,448	2,150	3,214	67.3	45.0
Italy . . . . .	...	418	708	...	...	39,242	63,619	94,035	61.7	41.7
Chosen . . . . . (s)	208	227	218	91.8	95.4	32,400	33,566	28,145	96.5	115.1
(t)	138	132	120	104.2	115.3	14,600	16,647	12,085	87.7	120.8
Japan . . . . . (s)	2,448	2,732	2,784	89.6	87.9	365,513	400,062	422,918	91.4	86.4
(t)	2,861	2,944	3,363	97.2	85.1	289,705	320,851	397,772	90.3	72.8
TOTALS . . . . .	—	—	—	—	—	745,554	839,948	961,882	88.8	77.5

s) Spring cocoons. — t) Summer-autumn cocoons.

### FODDER CROPS

*Germany:* According to the most recent estimate, area of clover harvested this year is about 3,633,000 acres against 4,160,000 in 1934 and 4,318,000 on the average of the five years ending 1933; percentages, 87.3 and 84.1. The corresponding produc-

tion is estimated at about 158,299,000 centals (7,915,000 short tons) against 156,221,000 (7,811,000) and 200,947,000 (10,047,000); percentages, 101.3 and 78.8.

The corresponding figures for alfalfa are follows: Area — 897,000 acres, 785,000 acres and 750,000 acres. Percentages: 114.2 and 119.5. Production — 51,454,000 centals (2,573,000 sh. tons), 35,523,000 centals (1,776,000 sh. tons) and 42,573,000 centals (2,129,000 sh. tons); Percentages: 144.8 and 120.9.

For permanent meadows (irrigated and not irrigated): Area — 13,882,000 acres; 13,564,000 acres and 13,594,000 acres. Percentages 102.3 and 102.1. Production — 521,000 centals (26,088,000 sh. tons), 390,798,000 centals (19,540,000 sh. tons) and 528,691,000 centals (26,434,000 sh. tons). Percentages: 133.5 and 98.7.

Condition of crops on 1 December of this year and at 1 November 1935, in the system of the country, was as follows clover 2.6 (2.6) and pastures 2.9 (3.0).

*Austria:* The mild temperature during November was very favourable to fodder crops. The pasture grasses in the meadows have enabled the reduced supplies of fodder to the economised.

On 1 December the crop condition of fodder crops was as follows: red clover 2.3 (against 2.6 on 1 November 1935 and 2.3 on 1 December 1934), alfalfa, 2.6 (2.8, 2.1), mixed clovers, 2.4 (2.6, 2.2); permanent meadows 2.4 (2.6, 2.3) and pastures 2.5 (2.8, 2.5).

*Spain:* Crop condition of permanent meadows in the northern provinces of Spain was, in general, good. On the other hand, pasture was very poor because of the lack of rain during the autumn. In the province of Andalusia fodder crops were progressing favourably.

*France.* The following table gives the most important figures of the last fodder crops

	1935	1931	Average 1929-33	% 1935	
				1931 = 100	Average = 100
<i>Area.</i>					
(thousands of acres)					
<i>Annual crops:</i>					
Mangels . . . . .	2,148	2,149	2,074	100.0	103.6
Turnips and swedes . . . . .	491	556	528	88.2	93.0
Cabbages. . . . .	537	591	585	90.9	91.8
Annual green fodder crops. . . . .	1,755	1,768	1,795	99.3	97.8
<i>Total</i> . . . . .	4,931	5,064	4,982	97.4	99.0
<i>Artificially sown grasses:</i>					
Leguminous crops. . . . .	7,277	7,342	7,133	99.1	102.0
Mixed gramineous and leguminous crops . . . . .	1,318	1,335	1,208	98.7	109.2
<i>Total</i> . . . . .	8,595	8,677	8,340	99.0	105.1
<i>Permanent meadows</i> . . . . .	14,503	13,719	13,494	105.7	107.5

	1935	1934	Average 1929-33	1935	1934	Average 1929-33	% 1934 = 100	1935 Average = 100
Production.								
	(thousand cents)			(thousand short tons)				
Vegetable crops for fodder:								
Mangels . . . .	677,121	673,290	641,684	33,856	33,664	32,084	100.6	105.5
Turnips and swe- des . . . . .	77,530	95,243	87,032	3,876	4,762	4,352	81.4	89.1
Cabbages . . . .	125,265	132,344	150,281	6,263	6,617	7,514	94.7	83.8
Total . . . .	879,916	900,877	878,997	43,995	45,043	43,950	97.7	100.1
Hay (gramineous and legumi- nous grasses):								
Animal fodder crops 1) . . . .	264,217	234,053	278,234	13,211	11,702	13,912	112.9	95.0
Leguminous crops . . . . .	247,564	242,261	258,340	12,378	11,613	12,917	106.6	95.8
Mixed grami- neous and le- guminous crops . . . . .	34,415	34,420	35,640	1,721	1,721	1,782	100.0	96.6
Total . . . .	546,196	510,734	572,214	27,310	25,036	28,611	111.5	95.5
Hay (permanent meadows) . . .								
	374,792	354,805	421,911	18,739	17,740	21,095	105.6	88.8
1) Including maize consumed fresh								

1) Including maize consumed fresh

The reduction which appeared in the acreage of fodder crops and temporary meadows is relatively small. As the figures are only of a provisional character for this year it is impossible to draw any definite conclusions. It is necessary to note, however, the general character of this reduction and to observe that the weather conditions were favourable to sowing operations during the autumn and spring. Moreover the increase in the present statistics over last year's appears to correspond to a known fact and is the outcome of the crisis in national stock raising.

Fodder production is better than that of 1934, but a little below the average, it is however sufficient for the feeding of cattle which appear to have been slightly reduced in numbers.

*Great Britain and Northern Ireland:* Pastures still continued to afford a bite for stock, but much of the grass is of little feeding value. In Northern Ireland, pasture lands, particularly those situated in low lying areas deteriorated rapidly.

The quality of mangel roots is generally good; they are, however, slightly smaller than usual. Swedes are a variable crop and the roots are still on the small side. Turnips also are generally only a light crop. In Scotland, the turnip crops are generally above the average though in some districts heavy rains caused some deterioration; except in some coastal districts, swedes are a good average. Conditions for the lifting and storing of root crops were bad. In Northern Ireland the root crops are expected to be well up to the average.

*Poland:* On 15 November the crop condition of clover was 3.4 against 3.5 on 15 October and 3.2 on 15 November 1934.

*United States:* According to the December estimates, the area from which tame hay was cropped this year was 52,026,000 acres, compared with 51,828,000 acres in

1934 and an average of 53,839,000 acres in the five years 1929-33; percentages, 100.4 and 96.6. Production was estimated at 1,520 million centals (76 million short tons) compared with 1,046 million centals (52 million short tons) in 1934 and an average of 1,366 million centals (68 million short tons) in the preceding five years; percentages, 145.3 and 111.3.

Corresponding figures for wild hay are as follows: area, 12,462,000, 8,912,000 and 13,237,000 acres; percentages, 139.8 and 94.1; production, 240 million centals (12 million short tons), 95 million centals (4,750,000 short tons) and 204 million centals, (10,200,000 short tons); percentages, 252.7 and 117.8.

*Palestine:* The early sown bersim crops have been in some instances cut for the second time. This crop in general is showing successful growth and becoming more popular every year especially in the Jaffa-Ramleh areas. The early-sown hay crops have shown excellent germination and are well forward.

*Algeria:* The sowing of temporary fodder crops was done under good conditions and, particularly in the *département* of Constantine, an expansion in crops was forecast. The sprouting of the seeds was good. The condition of the pastures was in general satisfactory.

*Egypt:* Sowing of bersim (clover) is over in most provinces and is almost over in the few remaining ones. The first cutting has been started in early cultivations.

*French Morocco.* The relatively dry and mild weather of November favoured the growth of fodder, which is considered good and even very good in the Meknes region. On the other hand, the relative dryness of the month has aggravated the condition of the pasture in the non littoral regions, and it is no longer providing sufficient nourishment for the cattle.

## LIVE STOCK AND DERIVATIVES

### Pig population in Denmark.

(Thousands)

Classification	1935								1934			
	16 Nov.	5 Oct.	24 August	13 July	25 May	13 April	1st March	15 Jan.	1st Dec.	15 Oct.	1st Sept.	16 July
Boars for breeding	21	21	21	20	20	20	20	19	20	20	21	21
Sows in farrow for first time	97	86	75	83	83	87	89	72	48	29	40	66
Othersows in farrow	181	178	184	188	172	154	166	181	190	187	180	165
Sows in milk	89	98	90	78	88	98	81	77	74	82	78	89
Sows not yet covered (and not for slaughter)	26	29	25	24	25	22	19	19	21	25	29	24
Sows for slaughter	17	14	9	10	12	12	14	9	11	10	10	10
Total of sows	410	405	383	383	380	373	369	358	344	333	337	354
Sucking pigs not weaned	766	860	782	673	724	813	695	668	653	720	680	776
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg.	882	792	742	772	797	740	738	762	745	734	790	738
Pigs of 35 and under 60 kg.	674	683	693	733	635	629	637	667	646	711	661	648
Fat pigs of 60 kg. and over	565	534	545	453	500	463	508	451	621	590	503	524
Total pigs	3,318	3,295	3,166	3,034	3,056	3,038	2,967	2,925	3,029	3,108	2,992	3,061

### Live stock killed in Mexico.

In the following table we publish the figures of animals killed in Mexico in 1934 for home consumption, compared with the figures for the preceding 4 years.

	1934	1933	1932	1931	1930
Cattle . . . . .	929,440	851,784	827,970	866,112	797,834
Sheep . . . . .	318,127	315,532	311,717	341,996	345,112
Goats . . . . .	558,356	497,003	472,926	507,280	545,011
Pigs . . . . .	816,187	715,922	728,598	673,055	672,078

### Current information on livestock and derivatives.

*Irish Free State:* There are ample reserves of fodder and roots to meet all normal requirements. Yields of milk were normal for the season.

*Great Britain and Northern Ireland:* It is anticipated that the amount of available winter keep will be adequate, and as yet it has not been drawn upon to a greater extent than is usual at this period.

In the country as a whole, milk yields fell during November but at the end of the month they were about normal for the time of year.

*Hungary:* Health of animals is satisfactory, but there was some difficulty in feeding in those districts where fodder crops were particularly small.

*Netherlands:* There were good supplies of feedingstuffs for milk cows which had been taken indoors. There was insufficient bite on pastures where a limited number of cows were still to be found. In November, milk yields increased by 5 % in Groningen and by 3 % in Guelder; they fell by 5 to 10 % in Zeeland. In the other producing areas, milk production was practically normal.

The Central Statistical Bureau published an estimate of the consumption of milk, based on returns given by the Agricultural Crisis Organisations. For all the country the consumption was estimated at 198,000,000 Imperial gallons (238,000,000 American gallons) for the year 1932. For the centres of population in the western part of the country, where  $\frac{1}{3}$  of the total population are found, the average consumption per head for the year, during the period 1 March 1933 to 31 March 1934, was estimated at 33 Imperial gallons (40 American gallons). For the five more important districts which, in 1934, had 2,611,376 inhabitants, the following figures of consumption are compared with average prices received by handlers during the same periods in the Amsterdam and Rotterdam districts.

Period	Total consumption in Imperial gallons per week	Total consumption in American gallons per week	Average consumption per head in Imperial gallons per week	Average consumption per head in American gallons per week	Price per litre at Amsterdam in cents	Price per litre at Rotterdam in cents
4th quarter 1933 . .	1,637,400	1,966,600	0.63	0.75	12.0	12.0
1st " 1934 . .	1,643,100	1,973,200	0.63	0.76	12.0	12.0
2nd " " . .	1,715,200	2,059,800	0.66	0.79	10.2	10.3
3rd " " . .	1,667,100	2,002,100	0.64	0.77	11.0	10.0
4th " " . .	1,599,200	1,920,200	0.61	0.73	11.5	10.6
Year 1934 . . . .	1,656,100	1,988,900	0.63	0.73	11.2	10.7



These figures show that the reduction of price during the summer of 1934 was accompanied by an increase in consumption. Although prices during the 4th. quarter of 1934 were higher than those in the same period of 1933, consumption was smaller, and the reduction appears greater if the increase in population is taken into account.

In the first five districts the spread in annual consumption per head of the population was from a minimum of 139 to a maximum of 172 litres, while the average was about 150 litres.

*Switzerland:* It has already been reported that in October there was a reduction of 4.6 % in the deliveries of milk compared with last year and from the provisional returns of 483 milk societies it was ascertained that deliveries in November were 9 % less than in November 1934. In German Switzerland the reduction was 8.6 % and in French Switzerland 10 %. In the different cantons the reduction in milk production varied generally between 6 % and 13 %. The elimination of cows from production was continuing and this has been a cause of the reduction in the milk herd. It also appeared that most milk was being used for fattening and breeding purposes, because of the satisfactory price obtained for cows. In addition, in a number of areas the yield of the pasture this autumn was slightly inferior to that of last year and in the elevated areas animals were housed early. All these factors appear to have contributed to the reduction in the delivery of milk.

*United States:* Information available early in September points to a material increase in cattle feeding during the winter season of 1935-36 compared with the small feeding operations of a year earlier. While feeding is on an increased scale in practically all States the largest relative increases are in some of the Western States.

*Palestine:* No mortality among stock has been recorded. Kidding is becoming general and some early lambs are seen. All domestic and draught stock are in good condition.

The early rains have caused an abundant growth of natural grasses and with favourable conditions continuing an excellent grazing season should be assured

*Algeria* The condition of animals is generally satisfactory.

*French Morocco:* At the end of November the feeding conditions for animals was not quite satisfactory. The last stubbles and reserves of concentrated feed however provided subsistence for the animals.

*Union of South Africa* During the month of October grazing and water were relatively plentiful in the Cape Province, and stock on the whole in good condition, except in some of the north-eastern districts, where cattle especially were in a rather poor condition. In the Orange Free State grazing on the whole was fairly plentiful and stock were in fair to good condition. In the Natal small stock and cattle were in poor condition in some districts. Also in Transvaal condition of stock was not satisfactory

## TRADE

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<b>Wheat. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	161	0	0	0	346	0	0	0	220	0
Hungary	935	434	0	0	2,258	1,409	0	0	6,526	0
Lithuania	117	22	0	0	130	24	0	0	584	0
Poland	192	15	0	2	306	291	0	4	1,274	9
Romania	1,243	0	0	0	2,158	0	0	0	2,538	4
Yugoslavia	2	553	0	2	2	1,105	0	2	2,500	2
U. S. S. R.	17,353	13,084	0	0	6,726	642	...	...	1,285	4) 979
Canada	9	35	3,951	1,400	40,735	32,463	0	0	86,627	2
United States	4,471	8,170	—	—	22	1,164	8,724	4,531	1,356	15,540
Argentina	...	...	...	...	16,828	28,396	...	...	105,860	—
Chile	...	...	...	...	64	390	1)	0	659	410
Syria and Lebanon	13	57	0	4	26	104	2	9	278	18
Algeria	717	873	68	51	1,947	2,668	187	95	7,028	328
French Morocco	176	366	0	0	957	1,261	0	0	4,489	0
Tunisia	377	101	11	40	1,426	496	37	126	2,258	185
Australia	3,843	4,337	0	0	8,669	10,380	0	0	44,924	0
New Zealand	...	...	...	...	0	0	2)	0	0	22
<i>Importing Countries:</i>										
Germany	53	4	183	884	273	110	487	3,093	121	7,083
Austria	0	0	249	357	0	8	547	1,080	0	4,802
Belgium	117	101	3,159	2,595	245	348	7,613	8,741	1,742	25,450
Denmark	4	7	414	992	20	26	1,142	2,123	31	10,763
Spain	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	44	0	0	0	121	0
Irish Free State	0	0	421	1,025	0	0	1,653	2,732	0	9,420
Finland	0	0	137	101	0	0	388	309	0	1,338
France	236	1,962	1,759	1,836	2,249	2,941	5,110	4,870	22,688	15,278
Gr. Brit. and N. Irel.	77	73	11,096	9,180	148	355	27,197	28,980	827	113,179
Greece	0	0	825	397	0	0	2,491	1,642	0	8,684
Italy	...	...	...	...	1)	0	1)	1,512	1,217	9
Latvia	...	...	...	...	1)	483	1)	0	0	659
Norway	0	0	231	254	0	0	712	829	0	3,907
Netherlands	2	0	1,250	1,105	4	4	3,563	2,659	811	11,202
Portugal	—	—	...	...	—	—	40	46	—	207
Sweden	260	7	117	99	858	157	289	265	1,973	902
Switzerland	2	0	944	1,087	2	2	2,866	2,676	2	10,750
Czechoslovakia	0	0	79	2	2	2	1,206	4	4	849
Ceylon	—	—	9	0	—	—	35	2	—	33
China	...	...	...	...	44	1)	1,177	1)	485	10,889
India	68	31	0	0	121	203	0	0	247	101
Japan	—	—	...	...	—	—	994	1)	1,391	10,878
Egypt	...	...	...	...	1)	0	1)	0	29	1,257
Union of South Afr.	...	...	...	...	...	...	...	...	2	529
<b>Totals</b>	<b>30,428</b>	<b>30,322</b>	<b>24,903</b>	<b>21,413</b>	<b>87,093</b>	<b>85,027</b>	<b>67,978</b>	<b>67,940</b>	<b>297,983</b>	<b>277,357</b>
<b>Rye. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	254	22	60	15	514	44	172	386	51	5,393
Bulgaria	0	0	0	0	0	0	0	0	0	0
Estonia	51	40	0	22	97	494	0	22	783	22
Hungary	42	86	0	0	115	311	0	0	728	0
Latvia	...	...	...	...	317	348	0	0	1,929	0
Lithuania	187	35	0	0	373	62	0	0	1,199	0
Poland	456	1,179	0	0	1,217	2,950	0	0	11,671	0
Romania	...	...	...	...	...	...	...	...	0	0
Sweden	44	265	4	4	209	880	4	4	2,000	22
U. S. S. R.	...	...	...	...	340	432	—	—	624	—
Canada	4	51	0	4	75	328	0	4	666	11
Argentina	172	278	—	—	406	999	—	—	5,882	—
Algeria	0	2	0	0	20	18	0	0	26	0
<i>Importing Countries:</i>										
Austria	0	0	0	141	0	0	0	276	0	1,779
Belgium	0	0	498	18	0	0	966	562	31	1,797
Denmark	0	0	434	209	0	2	1,237	1,276	4	4,090
Finland	0	0	93	20	0	0	161	68	0	450
France	0	0	11	7	0	0	20	20	4	35
Italy	...	...	...	...	1)	0	1)	57	9	179
Norway	0	...	351	273	0	0	1,193	628	0	2,535
Netherlands	15	53	35	93	18	190	229	260	227	1,854
Switzerland	0	0	29	11	0	0	49	26	0	161
Czechoslovakia	0	0	2	2	0	2	4	7	4	20
United States	0	0	115	256	2	0	970	681	0	5,917
<b>Total</b>	<b>1,225</b>	<b>2,011</b>	<b>1,632</b>	<b>1,456</b>	<b>3,721</b>	<b>7,060</b>	<b>5,062</b>	<b>4,229</b>	<b>25,829</b>	<b>24,265</b>

COUNTRIES	OCTOBER				THREE MONTHS (August 1-Oct. 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<b>Wheat flour. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Germany	60	44	4	4	73	516	7	13	659	73
Bulgaria	0	0	0	0	0	0	0	0	0	0
Spain	0	0	0	0	2	0	0	0	0	0
France	322	472	152	174	767	1,142	331	487	4,266	1,543
Hungary	227	84	0	0	485	154	0	0	809	0
Italy	...	...	...	...	1,008	620	2	18	3,748	95
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	223	42	0	0	437	66	0	0	750	0
Romania	0	0	0	0	2	0	0	0	0	0
Yugoslavia	7	2	0	0	18	13	0	0	40	0
U. R. S. S.	...	...	...	...	...	...	...	...	683	205
Canada	983	952	9	26	2,496	2,482	26	117	9,310	390
United States	615	778	2	0	1,691	2,498	7	0	7,637	9
Argentina	207	183	—	—	536	633	—	—	2,132	—
Chile	...	...	...	...	18	22	2	18	49	66
India	55	26	0	0	132	71	2	0	309	4
Japan	...	...	...	...	950	1,071	2	2	7,203	46
Algeria	75	88	7	4	229	273	26	20	911	108
French Morocco	0	4	0	0	0	4	0	0	51	0
Tunisia	37	126	0	2	126	289	2	7	626	62
Australia	1,193	1,325	0	0	3,206	3,741	0	0	14,379	2
<i>Importing Countries:</i>										
Austria	0	0	93	51	0	0	223	99	2	774
Belgium	7	4	2	13	15	11	15	44	51	148
Denmark	2	4	35	40	11	9	71	165	18	474
Estonia	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	18	57	0	0	40	163	0	527
Finland	0	0	66	73	0	0	192	223	0	849
Gr. Brit. and N. Irel.	220	265	908	814	712	829	2,211	2,421	3,400	9,103
Greece	0	0	2	2	0	0	4	4	0	33
Norway	0	0	115	88	2	2	207	320	4	999
Netherlands	0	0	108	104	2	2	240	216	9	908
Portugal	—	—	...	...	—	—	22	26	—	150
Sweden	2	0	0	0	4	0	0	0	0	2
Czechoslovakia	0	0	0	2	2	2	2	7	4	20
Ceylon	—	—	35	51	—	—	106	99	—	403
China	...	...	...	...	...	...	179	128	57	1,499
Indo-China	...	...	...	...	2	7	60	60	—	384
Java and Madura	...	...	...	...	...	...	148	174	—	1,149
Syria and Lebanon	2	7	2	13	7	11	9	24	62	101
Egypt	...	...	...	...	0	0	0	11	0	73
Union of South Afr.	...	...	...	...	...	...	...	...	2	11
New Zealand	...	...	...	...	...	...	...	...	234	234
<b>Totals</b>	<b>4,237</b>	<b>4,406</b>	<b>1,558</b>	<b>1,518</b>	<b>12,933</b>	<b>14,468</b>	<b>4,178</b>	<b>4,890</b>	<b>57,173</b>	<b>20,444</b>
<b>Barley. — Thousand centals (1 cental = 100 lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria	13	0	0	0	33	0	0	0	0	0
Spain	0	0	0	0	0	0	0	0	0	0
Hungary	13	40	26	0	55	66	26	0	93	24
Lithuania	4	0	0	0	7	0	0	0	176	0
Poland	1,012	1,204	0	0	1,909	2,566	0	0	7,180	0
Romania	608	664	0	0	2,575	2,337	0	0	4,198	0
Czechoslovakia	168	353	0	0	240	410	0	0	1,140	2
Yugoslavia	0	77	4	0	0	309	15	0	538	0
U. S. S. R.	...	...	...	...	5,346	1,742	—	—	3,669	—
Canada	364	970	0	0	827	2,392	0	0	7,227	0
United States	547	273	4	690	1,759	999	13	1,323	2,132	5,291
Argentina	317	295	—	—	639	1,111	—	—	9,590	—
Chile	...	...	...	...	51	580	0	0	1,217	0
India	0	104	7	0	2	207	35	0	392	13
Algeria	84	351	46	141	157	624	192	368	1,177	745
Egypt	...	...	...	...	0	0	0	0	0	18
French Morocco	18	902	0	0	243	2,906	0	0	5,706	0
Australia	...	...	...	...	225	306	0	0	1,380	0
<i>Importing Countries:</i>										
Germany	0	0	15	2,590	0	0	216	3,699	2	10,498
Austria	0	0	154	170	0	0	337	522	0	1,574
Belgium	24	110	1,473	946	68	163	3,023	2,862	454	8,481
Denmark	276	392	0	146	710	902	73	403	1,398	1,030
Irish Free State	0	4	2	0	4	4	2	0	4	256
France	0	0	467	346	0	0	928	1,133	2	3,982
Gr. Brit. and N. Irel.	0	0	3,860	2,167	0	2	8,499	5,520	9	14,315
Greece	0	0	33	0	0	0	44	0	0	77
Italy	...	...	...	...	0	0	333	218	0	1,852
Norway	0	0	86	11	0	0	157	49	2	168
Netherlands	40	53	703	390	71	115	1,964	1,572	194	5,913
Switzerland	0	0	454	340	0	0	686	807	0	2,636
Syria and Lebanon	37	22	0	2	137	26	2	7	139	44
Tunisia	346	4	7	163	981	15	20	487	395	1,010
<b>Totals</b>	<b>3,871</b>	<b>5,818</b>	<b>7,341</b>	<b>8,102</b>	<b>16,039</b>	<b>17,782</b>	<b>16,565</b>	<b>18,970</b>	<b>48,414</b>	<b>57,989</b>

a) 2) 3) 4) See notes page 981.

COUNTRIES	OCTOBER				TEN MONTHS (January 1-Oct. 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934	1934
<b>Butter. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Austria . . . . .	593	756	2	0	5,000	5,368	13	154	7,053	157
Denmark . . . . .	24,460	25,331	0	0	255,993	282,387	157	0	330,311	20
Estonia . . . . .	2,493	2,176	0	0	20,869	19,577	0	0	22,306	0
Irish Free State . . . . .	3,792	5,871	0	2	56,394	54,353	40	79	56,886	84
Finland . . . . .	1,817	1,810	0	0	19,255	21,239	0	0	24,463	13
Hungary . . . . .	847	1,032	0	0	4,147	7,613	0	0	8,790	0
Latvia . . . . .	...	...	...	...	30,001	27,256	1)	1)	34,615	0
Lithuania . . . . .	2,657	2,158	0	0	23,636	18,940	0	0	21,321	0
Norway . . . . .	0	0	0	0	247	344	0	2	547	2
Netherlands . . . . .	8,089	3,488	35	172	89,001	71,626	287	772	81,320	1,173
Poland . . . . .	1,091	578	0	7	8,971	8,830	2	7	9,782	9
Sweden . . . . .	2,996	4,273	0	0	40,521	43,985	2	4	51,152	4
U. S. S. R. . . . .	...	...	...	...	11,131	17,844	...	...	83,562	...
Argentina . . . . .	93	1,856	...	...	9,877	12,377	...	...	18,345	...
India . . . . .	20	20	68	42	194	168	624	476	212	642
Syria and Lebanon . . . . .	2	4	9	77	386	265	265	710	293	809
Australia . . . . .	22,871	27,681	0	0	196,430	188,187	2	2	246,784	2
New Zealand . . . . .	26,960	23,360	...	...	240,463	236,283	...	...	292,830	...
<i>Importing Countries:</i>										
Germany . . . . .	0	0	14,967	18,162	13	7	128,664	97,006	9	136,165
Belgium . . . . .	4	13	346	2,758	53	95	8,827	15,924	108	20,629
Spain . . . . .	0	0	2	0	22	11	73	134	15	143
France . . . . .	1,310	670	121	46	9,875	5,900	1,155	9,224	7,297	9,603
Gr. Brit. and N. Irel. . . . .	644	952	80,066	81,690	14,806	10,642	919,229	943,754	12,635	1,086,713
Greece . . . . .	...	...	112	99	...	...	820	542	...	690
Italy . . . . .	...	...	...	...	282	240	776	3,342	276	3,801
Switzerland . . . . .	0	0	9	11	2	0	137	639	0	653
Czechoslovakia . . . . .	0	0	218	11	0	22	2,310	2,002	22	2,229
Canada . . . . .	650	64	7	22	1,150	359	146	2,851	428	2,873
United States . . . . .	267	68	108	172	822	1,107	22,042	772	1,220	1,164
Ceylon . . . . .	...	...	82	49	...	...	692	569	...	681
Java and Madura . . . . .	...	...	...	...	...	...	7,249	7,701	...	10,313
Japan . . . . .	...	...	...	...	...	...	15	42	...	64
Egypt . . . . .	...	...	...	...	119	68	745	604	82	789
Tunisia . . . . .	2	0	227	214	18	7	1,673	1,724	22	2,114
<b>Totals . . . . .</b>	<b>101,658</b>	<b>102,161</b>	<b>96,379</b>	<b>103,530</b>	<b>1,039,678</b>	<b>1,035,100</b>	<b>1,095,945</b>	<b>1,089,036</b>	<b>1,312,686</b>	<b>1,281,539</b>
<b>Cheese. — (Thousand lb.).</b>										
<i>Exporting Countries:</i>										
Bulgaria . . . . .	478	470	0	0	3,217	1,843	0	0	2,652	0
Denmark . . . . .	1,140	1,254	0	0	11,131	11,486	22	62	13,891	73
Finland . . . . .	1,153	811	2	2	7,787	6,733	...	13	8,523	40
Italy . . . . .	...	...	...	...	39,884	39,593	8,715	8,109	55,248	10,214
Lithuania . . . . .	15	216	0	0	474	1,649	2	2	2,200	2
Norway . . . . .	333	485	24	22	2,500	3,759	196	157	4,418	214
Netherlands . . . . .	11,235	11,246	112	75	113,613	113,642	657	1,310	134,892	1,455
Poland . . . . .	29	450	22	40	575	2,271	245	470	3,926	531
Switzerland . . . . .	3,397	3,525	377	712	33,804	33,352	2,820	4,685	39,143	5,353
Czechoslovakia . . . . .	317	245	174	249	1,457	1,592	2,198	2,262	1,995	2,628
Yugoslavia . . . . .	816	472	7	9	3,688	3,371	49	44	4,045	57
Canada . . . . .	13,049	15,029	159	115	44,994	44,042	1,003	730	61,167	946
Australia . . . . .	838	1,737	7	11	11,462	8,210	62	64	12,467	77
New Zealand . . . . .	10,737	15,668	...	...	154,265	180,359	0	0	222,266	2
<i>Importing Countries:</i>										
Germany . . . . .	35	179	5,384	5,690	595	1,722	50,444	62,007	2,114	74,488
Austria . . . . .	688	522	106	84	6,135	3,106	1,528	1,473	3,860	1,720
Belgium . . . . .	33	22	4,076	4,608	278	317	43,572	39,624	353	47,818
Spain . . . . .	4	7	128	284	95	115	1,931	1,927	123	2,482
Irish Free State . . . . .	245	174	4	4	686	351	57	55	514	64
France . . . . .	2,108	2,262	2,815	2,903	19,679	20,179	27,734	29,255	25,973	35,173
Gr. Brit. and N. Irel. . . . .	602	597	30,658	26,766	4,780	4,828	259,908	278,747	5,968	334,718
Greece . . . . .	31	152	49	24	157	1,120	1,045	181	1,144	295
Hungary . . . . .	9	7	0	0	185	112	2	0	176	0
Portugal . . . . .	...	...	...	...	...	...	291	298	...	525
Sweden . . . . .	...	...	159	132	...	...	1,113	911	...	1,248
United States . . . . .	79	108	6,014	4,460	955	1,127	40,032	38,239	1,378	47,532
India . . . . .	0	0	154	130	2	2	963	882	4	1,151
Java and Madura . . . . .	...	...	...	...	...	...	1,429	1,265	...	1,656
Syria and Lebanon . . . . .	0	64	82	150	430	421	791	955	534	1,221
Algeria . . . . .	11	7	919	1,030	104	93	9,270	9,200	119	11,288
Egypt . . . . .	...	...	...	...	64	79	5,520	4,592	126	6,537
Tunisia . . . . .	2	2	298	238	37	84	2,244	2,286	86	2,959
<b>Totals . . . . .</b>	<b>47,384</b>	<b>55,711</b>	<b>51,730</b>	<b>47,738</b>	<b>463,033</b>	<b>485,558</b>	<b>463,858</b>	<b>489,805</b>	<b>609,305</b>	<b>592,467</b>

1) 2) 4) See notes page 981.

COUNTRIES	OCTOBER				THREE MONTHS (August 1-Oct. 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<b>Cotton. — Thousand centals (1 cental = 100 lbs.).</b>										
<i>Exporting Countries:</i>										
United States . . . .	3,907	3,362	40	60	7,917	7,291	112	152	26,505	536
Argentina . . . . .	55	40	—	—	326	220	—	—	694	—
Brazil . . . . .	—	—	—	—	245	326	—	—	3,567	—
India . . . . .	701	461	71	51	1,702	1,773	256	220	12,553	1,850
Egypt . . . . .	911	1,296	—	—	1,978	1,709	—	—	7,912	—
<i>Importing Countries:</i>										
Germany . . . . .	71	95	719	454	256	287	2,066	1,323	966	6,391
Austria . . . . .	0	2	77	60	0	2	190	157	4	672
Belgium . . . . .	53	46	152	240	90	128	278	500	710	2,068
Denmark . . . . .	—	—	18	18	—	—	42	53	—	185
Spain . . . . .	2	4	146	119	7	4	381	320	51	2,161
Estonia . . . . .	0	0	11	11	0	0	29	29	0	117
Finland . . . . .	0	0	29	22	0	0	64	66	4	287
France . . . . .	40	40	410	454	82	214	1,082	1,025	620	5,055
Gr. Brit. and N. Irel.	55	51	1,376	961	179	165	2,621	2,745	710	12,170
Greece . . . . .	0	0	11	9	11	0	40	33	11	165
Hungary . . . . .	0	0	37	49	0	0	108	117	0	489
Italy . . . . .	—	—	—	—	1) 0	1) 0	443	392	2	3,501
Latvia . . . . .	—	—	—	—	1) 0	1) 0	18	15	0	108
Norway . . . . .	0	0	7	7	0	0	13	13	0	64
Netherlands . . . .	0	0	84	75	2	0	225	201	4	847
Poland . . . . .	0	0	141	121	0	4	395	348	9	1,437
Portugal . . . . .	—	—	—	—	—	—	75	46	—	448
Sweden . . . . .	—	—	49	55	—	—	119	115	—	624
Switzerland . . . .	0	0	49	51	0	0	90	119	2	564
Czechoslovakia . . .	4	9	172	150	13	24	443	403	73	1,554
Yugoslavia . . . . .	0	0	40	40	0	0	88	77	20	320
Canada . . . . .	—	—	93	93	—	—	238	256	—	1,241
China . . . . .	—	—	—	—	1) 60	1) 62	1) 108	1) 388	384	1,640
Japan . . . . .	—	—	—	—	1) 84	1) 73	1) 1,548	1) 2,648	595	17,430
Algeria . . . . .	0	0	0	0	0	2	2	2	4	4
<b>Totals</b>	<b>5,799</b>	<b>5,406</b>	<b>3,747</b>	<b>3,100</b>	<b>12,952</b>	<b>12,286</b>	<b>11,074</b>	<b>11,763</b>	<b>55,400</b>	<b>61,928</b>

**Wool. — (Thousand lbs.).**

COUNTRIES	TWO MONTHS (September 1-October 31)				TWO MONTHS (September 1-October 31)				TWELVE MONTHS (Sept. 1-August 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1934	1935	1934	1935	1934	1935	1934	1934-35	1934-35
<i>Exporting Countries:</i>										
Irish Free State . . .	1,590	1,314	57	77	3,095	2,172	106	157	13,486	655
Hungary . . . . .	26	267	73	315	73	523	271	432	1,867	3,267
Argentina . . . . .	5,997	9,464	—	—	12,624	12,884	—	—	268,475	—
Chile . . . . .	2,216	1,299	—	—	4,341	2,097	—	—	32,159	—
India . . . . .	7,227	3,737	201	430	14,714	6,735	591	800	21,918	245
Syria and Lebanon . .	0	1,054	0	18	1,021	1,155	53	35	52,565	7,436
Algeria . . . . .	545	333	101	194	1,594	1,082	198	346	5,545	82
Egypt . . . . .	—	—	—	—	1) 359	1) 42	1) 198	1) 346	8,177	2,319
Un. of S. Africa . . .	17,871	9,442	—	—	21,076	10,509	—	—	3,576	55
Australia . . . . .	362	322	—	—	628	571	—	—	213,563	57
New Zealand . . . . .	83,364	82,136	567	355	129,928	132,137	1,482	417	8,620	1,329
Greece . . . . .	5,878	6,191	37	20	10,386	11,662	79	37	815,232	3,695
Italy . . . . .	1,962	549	—	—	7,128	1,235	—	—	73,571	132
France . . . . .	3,419	1,649	—	—	7,397	4,586	—	—	160,673	101
<i>Importing Countries:</i>										
Germany . . . . .	106	719	6,962	7,729	190	3,031	14,797	13,379	46,196	37
Austria . . . . .	132	225	2,524	2,251	198	644	5,042	3,680	5,701	235,040
Belgium . . . . .	13	419	1,142	668	37	608	2,112	1,241	2,086	55,398
Denmark . . . . .	3,492	5,443	15,274	10,221	5,580	8,292	22,126	14,736	1,038	18,843
Spain . . . . .	2,568	1,252	284	320	4,539	2,222	750	593	99,341	222,643
Finland . . . . .	20	9	575	562	53	42	1,093	1,041	20,113	4,394
France . . . . .	346	53	437	595	1,102	196	1,814	1,047	401	4,700
Gr. Brit. and N. Irel.	11	40	564	578	35	42	1,047	972	3,106	10,697
Greece . . . . .	3,874	3,415	13,272	13,027	7,112	7,690	22,800	17,657	220	5,417
Italy . . . . .	28,742	22,957	40,279	33,032	41,723	31,202	68,081	53,156	43,914	375,164
Latvia . . . . .	243	123	686	617	373	154	1,296	1,036	317,070	836,329
Netherlands . . . . .	—	—	—	—	1) 29	1) 106	1) 7,549	1) 2,762	721	7,568
Norway . . . . .	—	—	—	—	1) 24	1) 128	1) 459	1) 1,365	88,373	1,186
Poland . . . . .	86	121	302	216	176	247	522	373	1,288	14,127
Sweden . . . . .	172	141	273	639	439	373	366	822	1,435	2,304
Switzerland . . . . .	130	60	710	694	196	326	1,049	1,069	3,060	6,301
Czechoslovakia . . .	18	0	3,001	1,160	18	35	5,170	2,273	1,501	7,829
Yugoslavia . . . . .	—	—	1,673	2,150	—	—	3,084	3,027	112	36,341
Canada . . . . .	15	18	842	981	18	62	1,464	1,757	18,265	—
United States . . . .	40	88	2,582	2,183	97	569	4,795	3,752	212	22,053
Japan . . . . .	46	126	818	507	119	203	1,361	959	1,437	33,215
Tunisia . . . . .	1,343	990	1,325	505	2,584	1,462	2,134	933	1,107	7,690
Algeria . . . . .	0	0	23,497	8,849	13	0	45,451	16,418	6,261	11,973
France . . . . .	—	—	—	—	1) 0	1) 9	1) 2,864	1) 1,823	27	147,234
Italy . . . . .	104	13	42	31	165	49	84	49	507	224,482
<b>Totals</b>	<b>171,938</b>	<b>153,969</b>	<b>118,100</b>	<b>88,924</b>	<b>279,387</b>	<b>245,091</b>	<b>220,623</b>	<b>150,146</b>	<b>2,237,684</b>	<b>2,416,085</b>

a) = Wool greasy b) = Wool scoured — 1) 2) 3) See notes page 981

COUNTRIES	OCTOBER		FOUR MONTHS (July 1-Oct. 31)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	OCTOBER		FOUR MONTHS (July 1-Oct. 31)		TWELVE MONTHS (July 1- June 30)
	1935	1934	1935	1934	1934-35		1935	1934	1935	1934	1934-35
<b>Coffee. — (Thousand lb.).</b>						<b>Tea. — (Thousand lb.)</b>					
<i>Exporting Countries:</i>	<b>EXPORTS.</b>					<i>Exporting Countries:</i>	<b>EXPORTS.</b>				
Brazil . . . . .	...	...	2) 338,034	1) 235,675	1,773,792	Ceylon . . . . .	17,679	14,985	62,323	67,197	213,701
India . . . . .	1,385	1,468	2,260	1,773	16,521	China . . . . .	...	...	20,966	1) 37,232	96,477
Java and Madura . . . . .	...	...	1) 19,317	1) 24,948	65,500	India . . . . .	42,521	41,024	149,915	157,461	108,701
						Java and Madura . . . . .	...	...	1) 24,143	1) 25,909	120,847
						Japan . . . . .	...	...	1) 15,620	1) 12,066	30,986
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany . . . . .	0	13	0	44	66	Belgium . . . . .	0	0	0	2	9
Belgium . . . . .	40	13	203	51	152	Irish Free State . . . . .	4	7	13	240	256
France . . . . .	2	2	2	4	9	France . . . . .	0	2	4	9	26
Gr. Britain and N. Ireland . . . . .	2,194	1,609	10,005	4,751	18,962	Gr. Britain and N. Ireland . . . . .	7,326	6,623	24,086	23,208	68,831
Netherlands . . . . .	1,085	816	2,846	3,880	11,524	Netherlands . . . . .	9	11	40	44	132
Portugal . . . . .	...	...	1) 670	1) 653	2,712	Syria and Lebanon . . . . .	0	0	0	0	9
Switzerland . . . . .	0	115	2	344	553	Algeria . . . . .	0	15	4	44	93
Canada . . . . .	20	7	64	20	115	Union of S. Africa . . . . .	...	...	...	...	31
Ceylon . . . . .	0	0	0	2	4	Australia . . . . .	...	...	1) 146	1) 243	802
Syria and Lebanon . . . . .	0	0	0	0	0	New Zealand . . . . .	...	...	2) 18	2) 11	112
Australia . . . . .	...	...	1) 9	1) 15	73						
<b>Totals . . . . .</b>	—	—	—	—	<b>1,889,983</b>	<b>Totals . . . . .</b>	<b>67,539</b>	<b>62,667</b>	<b>297,278</b>	<b>323,666</b>	<b>641,013</b>
<i>Importing Countries:</i>	<b>IMPORTS</b>					<i>Importing Countries:</i>	<b>IMPORTS</b>				
Germany . . . . .	29,939	30,106	112,277	116,876	327,491	Germany . . . . .	924	1,041	3,424	4,154	10,216
Austria . . . . .	1,071	1,157	3,975	4,491	12,291	Austria . . . . .	99	90	265	249	836
Belgium . . . . .	12,613	8,658	37,386	34,743	103,750	Belgium . . . . .	66	44	176	157	613
Bulgaria . . . . .	112	95	381	326	1,060	Denmark . . . . .	101	165	375	381	1,230
Denmark . . . . .	5,721	6,032	17,685	20,216	58,260	Spain . . . . .	20	29	66	79	273
Spain . . . . .	4,802	4,857	17,811	15,790	52,117	Estonia . . . . .	9	7	31	20	77
Estonia . . . . .	26	11	64	49	163	Irish Free State . . . . .	3,126	2,557	8,076	8,483	22,818
Irish Free State . . . . .	51	29	154	97	520	Finland . . . . .	20	20	82	66	247
Finland . . . . .	4,085	3,261	14,277	12,734	39,117	France . . . . .	289	174	798	485	2,189
France . . . . .	35,686	30,305	140,545	125,547	392,274	Gr. Britain and N. Ireland . . . . .	56,401	68,601	176,496	209,960	507,905
Gr. Britain and N. Ireland . . . . .	816	1,153	3,208	5,415	57,574	Ireland . . . . .	75	53	192	115	448
Greece . . . . .	1,281	928	4,526	3,922	12,604	Greece . . . . .	51	60	108	258	611
Hungary . . . . .	335	300	1,138	2,154	5,534	Hungary . . . . .	...	...	1) 44	1) 42	342
Italy . . . . .	...	...	1) 22,719	1) 20,798	86,975	Latvia . . . . .	...	...	1) 13	1) 9	84
Latvia . . . . .	...	...	1) 46	1) 4	143	Lithuania . . . . .	13	2	31	24	77
Lithuania . . . . .	44	26	119	121	419	Norway . . . . .	44	35	137	115	337
Norway . . . . .	3,001	3,274	13,896	10,322	35,894	Netherlands . . . . .	5,970	2,321	13,157	11,502	30,012
Netherlands . . . . .	11,237	6,691	33,682	23,248	62,949	Poland . . . . .	320	357	1,133	1,105	3,814
Poland . . . . .	657	1,329	3,007	4,837	15,668	Portugal . . . . .	...	...	1) 93	1) 99	399
Portugal . . . . .	...	...	1) 3,501	1) 2,800	15,847	Sweden . . . . .	146	93	373	291	944
Sweden . . . . .	11,671	7,610	37,728	31,359	97,506	Switzerland . . . . .	174	181	694	527	1,609
Switzerland . . . . .	3,371	2,216	16,136	8,400	32,476	Czechoslovakia . . . . .	137	157	450	395	1,056
Czechoslovakia . . . . .	1,956	1,689	7,844	7,714	23,810	Yugoslavia . . . . .	60	49	150	142	439
Yugoslavia . . . . .	1,488	1,217	4,976	4,400	13,770	Canada . . . . .	6,327	2,771	15,298	8,089	30,287
Canada . . . . .	2,917	2,269	10,082	8,990	31,800	United States . . . . .	9,326	7,941	30,135	31,032	83,571
United States . . . . .	163,259	134,321	584,123	459,751	1,551,815	Chile . . . . .	...	...	1) 1,323	1) 306	5,093
Chile . . . . .	...	...	1) 2,513	1) 1,208	5,743	Syria and Lebanon . . . . .	29	134	75	181	470
Ceylon . . . . .	516	223	1,422	1,113	3,272	Algeria . . . . .	207	295	871	1,168	2,899
Japan . . . . .	...	...	1) 1,724	1) 1,420	7,017	Egypt . . . . .	...	...	1) 3,364	1) 3,823	15,966
Syria and Lebanon . . . . .	...	...	1) 373	1) 701	2,286	Tunisia . . . . .	278	254	1,069	1,193	3,417
Algeria . . . . .	3,056	2,833	10,560	10,212	31,207	Union of S. Africa . . . . .	...	...	...	...	13,056
Egypt . . . . .	...	...	1) 5,046	1) 3,622	15,756	Australia . . . . .	...	...	1) 11,120	1) 12,125	46,875
Tunisia . . . . .	320	313	922	1,019	3,382	New Zealand . . . . .	...	...	2) 1,779	2) 1,700	9,374
Un. of S. Africa . . . . .	...	...	...	...	26,960						
Australia . . . . .	...	...	1) 1,288	1) 591	3,567	<i>Exporting Countries:</i>					
New Zealand . . . . .	...	...	2) 44	2) 44	456	China . . . . .	...	...	1) 126	1) 223	602
<i>Exporting Countries:</i>						India . . . . .	816	309	2,712	1,241	3,148
India . . . . .	0	0	0	0	0	Java and Madura . . . . .	...	...	1) 333	1) 692	1,649
<b>Totals . . . . .</b>	<b>300,205</b>	<b>251,276</b>	<b>1,115,478</b>	<b>945,034</b>	<b>3,131,473</b>	<b>Totals . . . . .</b>	<b>85,028</b>	<b>87,740</b>	<b>274,569</b>	<b>300,431</b>	<b>802,983</b>

1) 2) See notes page 981.

COUNTRIES	OCTOBER		TWELVE MONTHS (Oct. 1-Sept. 30)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	OCTOBER		THREE MONTHS (Aug. 1-Oct. 31)		TWELVE MONTHS (August 1-July 31)				
	1935	1934	1934-35	1933-34	1933-34		1935	1934	1935	1934	1934-35				
<b>Cacao. — (Thousand lb.).</b>						<b>Total Wheat and Flour *)</b> (Thousand centals).									
<b>EXPORTS.</b>						<b>a) NET EXPORTS.</b>									
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>									
Grenada . . . . .	...	...	8,869	9,632	—	Bulgaria . . . . .	161	0	346	0	220				
Dominican Republ. . . . .	...	...	62,420	49,818	—	Spain . . . . .	0	0	2	0	0				
Brazil . . . . .	...	...	208,128	194,140	—	Estonia . . . . .	0	0	44	0	121				
Ecuador . . . . .	...	...	41,870	37,084	—	France . . . . .	5)	522	5)	2,903	5)	11,041			
Trinidad . . . . .	...	...	45,748	29,057	—	Hungary . . . . .	1,237	547	2,903	1,614	7,604				
Venezuela . . . . .	...	...	27,688	25,223	—	Latvia . . . . .	...	...	1)	483	1)	659			
Ceylon . . . . .	825	494	7,893	8,841	—	Lithuania . . . . .	...	...	1)	130	24	584			
Java and Madura . . . . .	...	...	3,283	4,195	—	Poland . . . . .	489	68	888	375	2,264				
French Cameroon . . . . .	...	...	48,934	41,238	—	Romania . . . . .	1,243	0	2,161	0	2,533				
Ivory Coast . . . . .	...	...	97,575	78,681	—	Sweden . . . . .	146	5)	575	5)	1,069				
Gold Coast . . . . .	35,977	19,220	541,034	494,792	—	Yugoslavia . . . . .	11	553	26	1,120	2,551				
Nigeria and British Cameroon . . . . .	...	...	184,217	159,165	—	U. S. S. R. . . . .	...	...	1)	7)	6,726	1)	7)	642	944
Saint Thomas and Prince Is. . . . .	...	...	22,073	19,795	—	Canada . . . . .	18,651	14,319	44,026	35,618	98,518				
French Togoland . . . . .	...	...	19,674	12,932	—	Argentina . . . . .	4,747	8,415	17,542	29,240	108,701				
						Chile . . . . .	...	...	1)	84	1)	397	225		
						India . . . . .	141	66	295	298	551				
						Japan . . . . .	...	...	1)	269	1)	35	5)		
<i>Importing Countries:</i>						Syria and Lebanon . . . . .	13	44	5)	77	207				
Germany . . . . .	7	0	88	205	—	Algeria . . . . .	739	935	2,030	2,910	7,774				
Belgium . . . . .	0	49	176	18	—	French Morocco . . . . .	176	373	957	1,268	4,557				
France . . . . .	0	0	2	0	—	Tunisia . . . . .	417	227	1,554	747	2,637				
Gr. Brit. and N. Irel. . . . .	591	3,472	15,499	13,492	—	Australia . . . . .	5,432	3,896	12,943	15,371	64,093				
Netherlands . . . . .	511	384	4,643	7,368	—	<b>Totals . . . . .</b>									
Australia . . . . .	...	...	408	322	—	<b>32,720</b>	<b>29,987</b>	<b>93,984</b>	<b>89,736</b>	<b>316,853</b>					
<b>Totals . . . . .</b>	<b>—</b>	<b>—</b>	<b>1,340,222</b>	<b>1,185,998</b>	<b>—</b>										
<b>IMPORTS.</b>						<b>b) NET IMPORTS.</b>									
<i>Importing Countries:</i>						<i>Importing Countries:</i>									
Germany . . . . .	15,842	15,814	165,896	218,563	—	Germany . . . . .	57	827	117	2,313	6,180				
Austria . . . . .	882	1,484	12,485	10,282	—	Austria . . . . .	373	425	844	1,213	5,831				
Belgium . . . . .	2,083	1,215	20,686	24,954	—	Belgium . . . . .	3,036	2,504	7,368	8,437	23,839				
Bulgaria . . . . .	117	24	805	798	—	Denmark . . . . .	454	1,032	1,202	2,306	11,341				
Denmark . . . . .	1,030	315	8,552	8,468	—	Irish Free State . . . . .	445	1,102	1,706	2,950	10,124				
Spain . . . . .	985	271	22,515	24,963	—	Finland . . . . .	225	198	644	606	2,469				
Estonia . . . . .	40	110	756	644	—	France . . . . .	1,296	6)	2,280	1,056	6)				
Irish Free State . . . . .	101	64	2,820	1,577	—	Gr. Brit. and N. Irel. . . . .	11,936	9,839	29,048	30,748	119,956				
Finland . . . . .	26	24	256	147	—	Greece . . . . .	827	399	2,498	1,649	8,728				
France . . . . .	9,978	6,757	90,531	94,321	—	Italy . . . . .	...	...	1)	172	1)	414	7,478		
Gr. Brit. and N. Irel. . . . .	4,381	1,005	196,128	176,467	—	Norway . . . . .	384	370	985	1,252	5,232				
Greece . . . . .	399	249	2,840	2,868	—	Netherlands . . . . .	1,391	1,243	3,876	2,939	11,590				
Hungary . . . . .	1,091	586	8,638	6,477	—	Portugal . . . . .	...	...	1)	68	1)	82	408		
Italy . . . . .	...	...	26,652	18,470	—	Sweden . . . . .	6)	93	6)	108	6)				
Latvia . . . . .	...	...	1,235	1,594	—	Switzerland . . . . .	7)	941	7)	1,087	7)	2,864	7)	10,748	
Lithuania . . . . .	101	26	758	545	—	Czechoslovakia . . . . .	79	4	1,204	9	864				
Norway . . . . .	481	390	6,731	5,564	—	<b>Total Europe . . . . .</b>									
Netherlands . . . . .	10,734	7,983	134,247	124,522	—	<b>21,444</b>	<b>19,123</b>	<b>54,876</b>	<b>58,756</b>	<b>224,788</b>					
Poland . . . . .	1,038	1,662	15,845	14,253	—										
Portugal . . . . .	...	...	1,124	1,107	—	United States . . . . .	3,124	326	6,014	35	3,904				
Sweden . . . . .	961	1,008	12,103	9,749	—	Ceylon . . . . .	55	68	176	134	571				
Switzerland . . . . .	758	328	16,052	16,455	—	China . . . . .	...	...	1)	1,369	1)	560	12,522		
Czechoslovakia . . . . .	43,429	38,424	23,199	23,477	—	Indo-China . . . . .	...	...	1)	79	1)	79	511		
Yugoslavia . . . . .	2,928	2,090	1,867	1,537	—	Japan . . . . .	...	...	6)	6)	1,336				
Canada . . . . .	128	154	25,790	22,377	—	Java and Madura . . . . .	...	...	1)	196	1)	231	1,532		
United States . . . . .	1,521	1,219	566,112	412,535	—	Syria and Lebanon . . . . .	6)	5)	4	6)	538				
Japan . . . . .	...	...	3,142	2,337	—	Egypt . . . . .	...	...	1)	11	1)	44	1,303		
Australia . . . . .	...	...	14,500	16,239	—	Union of S. Africa . . . . .	...	...	...	...	3)	33	538		
New Zealand . . . . .	...	...	3,303	2,436	—	New Zealand . . . . .	...	...	2)	24	2)	33	331		
<b>Totals . . . . .</b>	<b>99,034</b>	<b>81,202</b>	<b>1,385,668</b>	<b>1,246,608</b>	<b>—</b>	<b>Totals . . . . .</b>	<b>24,623</b>	<b>19,517</b>	<b>62,749</b>	<b>59,872</b>	<b>247,336</b>				

\*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1,333,333 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 30 September — 2) Data up to 31 August. — 3) Data up to 30 June — 4) Data up to 31 May. — 5) See Net Imports. — 6) See Net Exports. — 7) Wheat only

# STOCKS OF CEREALS

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	December 1935	November 1935	October 1935	December 1934	December 1933
	1,000 centals				
<b>WHEAT:</b>					
Canadian in Canada . . . . .	139,385	143,645	134,524	138,692	145,821
U. S. in Canada . . . . .	0	0	0	629	1,351
U. S. in the United States . . . . .	48,704	50,596	47,822	59,495	85,312
Canadian in the United States . . . . .	19,707	19,230	12,360	14,141	8,860
Of other origin in the United States . . . . .	10	11	22	18	0
Total . . . . .	207,806	213,482	194,728	212,975	241,344
<b>RYE:</b>					
Canadian in Canada . . . . .	2,564	2,490	2,178	2,223	2,331
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	5,410	5,089	4,708	7,518	7,926
Canadian in the United States . . . . .	0	0	0	0	58
Of other origin in the United States . . . . .	15	48	1,243	72	0
Total . . . . .	7,989	7,627	8,129	9,813	10,315
<b>BARLEY:</b>					
Canadian in Canada . . . . .	4,348	4,884	4,062	5,574	5,697
U. S. in Canada . . . . .	0	0	0	0	0
U. S. in the United States . . . . .	8,758	8,849	6,681	9,199	9,580
Canadian in the United States . . . . .	0	54	60	426	0
Of other origin in the United States . . . . .	0	0	109	0	0
Total . . . . .	13,106	13,787	10,912	15,199	15,277
<b>OATS:</b>					
Canadian in Canada . . . . .	4,087	4,655	3,789	5,367	6,865
U. S. in Canada . . . . .	0	0	0	43	385
U. S. in the United States . . . . .	14,502	14,624	13,189	7,542	15,602
Canadian in the United States . . . . .	77	50	0	7	0
Of other origin in the United States . . . . .	0	0	0	171	0
Total . . . . .	18,666	19,329	16,978	13,130	22,852
<b>MAIZE:</b>					
U. S. in Canada . . . . .	1	1	2	3,386	6,065
Of other origin in Canada . . . . .	1,434	629	1,257	948	1,137
U. S. in the United States . . . . .	2,501	1,154	1,916	28,093	36,430
Of other origin in the United States . . . . .	77	172	255	0	0
Total . . . . .	4,013	1,956	3,430	32,427	43,632

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	December 1935	November 1935	October 1935	December 1934	December 1933
	1,000 centals				
Wheat (and flour in terms of grain) . . . . .	16,061	17,184	14,309	20,462	16,397
Rye . . . . .	139	245	312	288	1,061
Barley . . . . .	2,172	2,280	3,936	1,448	2,796
Oats . . . . .	541	515	755	1,501	733
Maize . . . . .	17,611	17,486	15,883	12,254	12,168

AUTHORITY: *Broomhall's Corn Trade News*



**Stocks of cereals belonging to farmers in Germany.**

PRODUCTS	% stocks: total production				Stocks in 1,000 centals			
	30 Nov 1935	31 Oct. 1935	30 Nov 1934	30 Nov. 1933	30 Nov. 1935	31 Oct 1935	30 Nov. 1934	30 Nov. 1933
Winter wheat . . . . .	55	64	49	55	51,900	60,400	42,600	59,700
Spring wheat . . . . .	75	80	66	78	6,500	6,900	8,500	11,600
Rye . . . . .	59	68	55	56	98,200	113,200	91,200	106,600
Winter barley . . . . .	38	47	32	38	8,400	10,400	4,900	6,000
Spring barley . . . . .	60	70	58	61	31,200	36,400	32,100	37,100
Oats . . . . .	73	81	73	77	86,400	95,900	87,700	118,000

AUTHORITY: *Marktiberschstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A.)

**Stocks of cereals in commercial elevators and mills in Germany.**

PRODUCTS	Last day of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	27,150	30,029	31,112	36,083	23,742
Flour for bread . . . . .	2,989	2,535	2,538	3,062	3,031
TOTAL 1) . . . . .	31,301	33,550	34,637	40,336	27,953
<b>RYE:</b>					
Grain . . . . .	23,113	25,371	28,027	23,270	17,840
Flour for bread . . . . .	1,616	1,642	1,616	2,233	1,797
TOTAL 1) . . . . .	25,490	27,787	30,404	26,555	20,483
<b>BARLEY</b> . . . . .	3,397	4,114	5,245	5,203	5,245
<b>OATS</b> . . . . .	3,708	3,887	3,887	1,660	1,814

1) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of wheat flour = 1,338.89 centals of wheat, 1,000 centals of rye flour = 1,470.59 centals of rye.

**Grain and flour stocks at the ports of Great Britain and Ireland 1).**

PRODUCTS	First day of month				
	December 1935	November 1935	October 1935	December 1934	December 1933
	1,000 centals				
<b>WHEAT:</b>					
Grain . . . . .	4,608	3,120	3,024	8,112	9,288
Flour as grain . . . . .	672	624	528	744	1,056
TOTAL . . . . .	5,280	3,744	3,552	8,856	10,344
<b>BARLEY</b> . . . . .	1,760	1,520	1,040	1,200	1,600
<b>OATS</b> . . . . .	256	192	256	208	480
<b>MAIZE</b> . . . . .	3,168	2,448	2,736	4,560	2,160

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News*.

## Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	December 1935	November 1935	October 1935	December 1934	December 1933
	1,000 centals				
<b>WHEAT:</b>					
Antwerp . . . . .	1,100	1,546	902	2,299	923
Rotterdam . . . . .	584	954	512	1,464	2,811
Amsterdam . . . . .	12	12	12	27	29
<b>RYE:</b>					
Antwerp . . . . .	27	27	36	144	229
Rotterdam . . . . .	24	88	61	203	143
Amsterdam . . . . .	0	1	0	3	2
<b>BARLEY</b>					
Antwerp . . . . .	362	316	180	244	463
Rotterdam . . . . .	353	309	18	220	1,058
Amsterdam . . . . .	3	2	1	4	113
<b>OATS:</b>					
Antwerp . . . . .	14	15	28	85	2
Rotterdam . . . . .	0	0	3	94	10
Amsterdam . . . . .	21	25	27	25	23
<b>MAIZE:</b>					
Antwerp . . . . .	48	158	101	89	19
Rotterdam . . . . .	154	138	220	375	13
Amsterdam . . . . .	39	5	4	74	4

1) Imported cereals. See note on p. 306 of the *Crop Report* of April 1934. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

## STOCKS OF COTTON

## Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	November 1935	October 1935	September 1935	November 1934	November 1933
	1,000 centals				
In consuming establishments . . . . .	6,548	5,226	3,486	6,293	7,748
In public storage and at compresses . . .	42,001	41,280	34,790	47,668	51,301
<b>TOTAL . . .</b>	<b>48,549</b>	<b>46,506</b>	<b>38,276</b>	<b>53,961</b>	<b>59,049</b>

## Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	December 1935	November 1935	October 1935	November 1934	November 1933
	1,000 centals				
Bombay 1) . . . . .	1,504	1,532	1,804	1,977	2,214
Alexandria 2) . . . . .	1,977	1,305	773	2,029	3,033

1) Stocks held by exporters, dealers and mills. — 2) From February 1934 quantities consumed in Alexandria or returned to the interior of the country are not included; prior to that date quantities returned to the interior are included.

AUTHORITIES: *East Indian Cotton Ass.* and *Commission de la Bourse de Minet-el-Bassal*.

Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	December 1935	November 1935	October 1935	December 1934	December 1933
	1,000 centals				
<i>Great Britain:</i>					
American . . . . .	1,083	880	643	1,224	2,268
Argentine, Brazilian, etc. . . . .	114	106	184	1,028	182
Peruvian, etc. . . . .	312	314	330	566	514
East Indian, etc. . . . .	89	119	148	237	180
Egyptian, Sudanese . . . . .	784	712	848	1,247	1,078
W. Indian, W. and E. African, Australian	58	65	89	280	229
TOTAL . . .	2,440	2,196	2,242	4,582	4,451
<i>Bremen:</i>					
American . . . . .	444	492	437	1,346	2,585
Other . . . . .	262	309	320	277	100
TOTAL . . .	706	801	757	1,623	2,685
<i>Le Havre:</i>					
American . . . . .	329	272	236	634	1,219
French colonies . . . . .	17	15	20	21	34
Other . . . . .	62	71	85	106	46
TOTAL . . .	408	358	341	761	1,299
<i>Total Continent 1):</i>					
American . . . . .	1,133	1,039	955	2,425	4,937
Argentine, Brazilian, etc. . . . .	219	280	284	147	61
E. Indian, Australian, etc. . . . .	84	131	164	192	132
Egyptian . . . . .	185	130	110	173	109
W. Indian, W. African, E. African, etc. .	154	135	131	247	91
TOTAL . . .	1,775	1,715	1,644	3,184	5,330

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Ass.* and (for Le Havre) *Bulletin de correspondance de la Bourse du Havre.*

## WEEKLY PRICES BY PRODUCTS

(All quotations are, unless otherwise stated, spot. The monthly averages are based on the weekly quotations, and the annual on the monthly.)

DESCRIPTION	13	6	29	22	AVERAGE					Commercial Season 1)	
	Dec.	Dec.	Nov.	Nov.	Nov.	Dec.	Dec.	Dec.			
	1935	1935	1935	1935	1935	1934	1933		1934-35	1933-34	
Wheat.											
Budapest: Tisza wheat, 78 kg. p. hl. (pengo p. quintal) . . . . .	18.15	18.15	18.22	18.42	18.34	* 16.39	* 7.46	16.67	9.70		
Braila: Good quality (lei p. quintal) . . . . .	n. q.	455	455	450	455	* 450	* 376	* 420	* 357		
Winnipeg: No. 1 Manitoba (cents p. 60 lb.) . . . . .	86 1/2	83 1/2	87 1/2	87 1/2	86 1/2	79 1/2	60 3/4	81 1/2	67 1/2		
Chicago: No. 2 Hard Winter (cents p. 60 lb.) . . . . .	116 1/2	n. 111	n. 116	n. 114	n. 114	n. 107	n. 84 1/2	104 1/2	89 1/2		
Minneapolis: No. 1 Northern (cents p. 60 lb.) 2) . . . . .	130 1/2	128 1/2	131 1/2	132 1/2	130 1/2	112 1/2	83	110 1/2	89 1/2		
New York: No. 2 Hard Winter (cents p. 60 lb.) . . . . .	131 1/2	125 1/2	127 1/2	128	127 1/2	117 1/2	94 1/2	113 1/2	98 1/2		
Buenos Aires (a): Barilleta, 80 kg. p. hectol. (paper pesos p. quintal) . . . . .	8.75	8.35	8.40	8.15	8.15	6.47	5.54	6.86	5.85		
Karachi: Karachi white, 2% barley, 1 1/2% impurities (rupees p. 656 lb.) . . . . .	25-2-0	25-9-0	25-4-0	24-14-0	25-8-10	23-1-0	22-5-7	22-5-9	22-2-4		
Berlin: Home grown (free at Brandenburg stations, Rm. p. quintal) 3) . . . . .	20.20	20.20	20.00	20.00	20.00	20.15	18.40	20.29	18.65		
Hamburg (c. 1 f.; Rm. p. quintal): . . . . .											
No. 2 Manitoba 4) . . . . .	9.52	9.57	9.72	9.87	9.64	* 9.17	7.56	8.95	7.94		
Barusso 5) . . . . .	8.09	7.92	7.91	7.85	7.96	6.23	5.84	6.50	6.22		
Antwerp (francs p. quintal): . . . . .											
Home-grown . . . . .	95.00	95.00	95.00	91.00	92.80	61.25	58.80	69.10	63.00		
No. 1 Manitoba (Atlantic) (in bond) . . . . .	112.00	114.00	113.00	112.00	112.80	75.60	64.90	86.10	67.65		
Barusso (in bond) . . . . .	90.50	91.00	90.50	90.00	95.30	51.62	53.80	60.90	53.00		
Paris: Home-grown (delivery regional depots, 76 kg. p. hl.; frs. p. quintal) 6) . . . . .	77.00	78.00	79.00	78.00	79.25	104.75	123.00	91.50	125.65		
London: Home grown (sh. p. 504 lb.) 7) . . . . .	25/6	25/6	26/-	25/6	25/10 1/4	21/8 1/4	19/9 1/4	22/4 1/4	20/10		
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb) . . . . .											
French (on sample) . . . . .	n. q.	22/6	11)22/6	11)23/3	11)23/5 1/2	19/0 1/4	n. q.	* 19/8 1/4	n. q.		
South Russian (on sample) . . . . .	n. q.	29/3	29/9	n. 28/9	29/2 1/2	n. q.	17/7 1/2	n. q.	* 19/5 1/2		
No. 1 Northern Manitoba (Atlantic) . . . . .	33/9	33/1 1/2	34/-	33/7 1/2	33/3 1/2	31/7	24/8 1/4	31/7 1/2	26/9		
No. 1 Northern Manitoba (Pacific) . . . . .	33/3	32/10 1/2	33/6	33/1 1/2	32/10 1/2	31/2	24/7	31/2 1/2	26/7		
No. 3 Northern Manitoba (Pacific) . . . . .	n. q.	31/-	30/10 1/2	30/9	30/2	27/10 1/2	22/6	28/5 1/2	24/5 1/2		
White Pacific . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11)21/1 1/4	n. q.	* 20/5		
Rosafé (afloat) 8) . . . . .	n. q.	11)26/9	11)27/1 1/2	11)26/9	11)26/9 1/2	20/10 1/4	n. 18/8	22/3 1/2	19/5 1/2		
West Australian (cargoes) . . . . .	n. q.	11)29/3	11)29/3	11)29/-	11)29/3	n. q.	n. q.	26/3 1/2	* 23/10 1/2		
New South Wales (cargoes) . . . . .	29/3	28/-	11)28/9	11)28/6	11)28/8 1/2	11)21/9	n. q.	* 25/7	* 24/-		
Milan (b): Home-grown, soft, «Buono mercantile» 76-78 kg p. hl. (lire p. q.) . . . . .	111.00	111.50	111.50	111.50	111.30	91.30	83.60	95.80	83.85		
Genoa: Sicilian Durum (c. i. f.; lire p. quint.) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	109.95	* 108.00	* 113.05	107.85		
Genoa (c. i. f.; U. S. \$ p. quintal): . . . . .											
No. 2 Manitoba (Pacific) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	* 3.30	n. q.	* 3.38	* 2.87		
No. 2 Canadian Durum 9) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	4.17	* 2.85	* 4.09	3.11		
Bahia Blanca, 79 kg. p. hl. (sh p. 1000 kg) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	104/4	* 91/6	* 111/-	* 93/6		
Rye.											
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 3) . . . . .	16.50	16.50	16.30	16.30	16.30	16.15	15.00	16.29	15.34		
Hamburg (c. i. f.; Rm. p. quintal): Plata, 72-73 kg p. hl. . . . .	4.88	4.97	4.96	4.98	5.03	6.12	4.52	5.76	4.76		
Budapest: Pest rye (pengo p. quintal) . . . . .	16.25	16.25	16.25	16.35	16.11	12.25	3.87	12.08	5.24		
Warsaw: Good quality (zloty p. quint.) . . . . .	12.87	12.87	13.37	13.37	13.37	14.62	14.50	14.82	14.32		
Winnipeg: No. 2 (cents p. 56 lb.) . . . . .	43 1/4	40	41 1/4	42 1/4	41 1/4	59 1/4	41	52 1/4	47 1/4		
Minneapolis: No. 2 (cents p. 56 lb.) . . . . .	52 1/4	47 1/4	48 1/2	48 1/4	49 1/4	79 1/4	57 1/4	67 1/4	63		
Groninger (c): Home-grown (fl. p. quint.) . . . . .	6.72	6.75	...	...	...	7.45	6.99	7.35	6.65		

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Thursday prices. — b) Saturday prices. — c) Prices of preceding Tuesday.

1) August-July. — 2) From 9 Aug. 1935, No. 1 Dark Northern Spring. — 3) 1 Oct. 1933-15 Aug. 1934, for wheat, and 1 Oct. 1933-15 July 1934, for rye: minimum prices; subsequently, fixed producers' prices for the price region of Berlin city. See *Government Measures*, No. 2, p. 57. — 4) From Nov. 1934, No. 1 Manitoba. — 5) Year 1933, 79 kg. p. hl.; subsequently, 80 kg. — 6) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations. For the regulations on milling see *Government Measures*, No. 2, pp. 69-73. — 7) From Aug. 1933, prices on the farm. — 8) Aug.-Oct. 1933, 63 1/2 lb. p. bushel, Nov.-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 1/2 lb. — 9) From Dec. 1934, No. 1 Can. Dur. — 10) 15 Nov. 1930. — 11) Shipping Dec. — 12) Shipping Jan. — 13) New crop, shipping Jan.-Feb. — 14) New crop, shipping Dec. — 15) Afloat.

DESCRIPTION	13	6	29	22	AVERAGE				
	Dec.	Dec.	Nov.	Nov.	Nov.	Dec.	Dec.	Commercial	
	1935	1935	1935	1935	1935	1934	1933	Season 1)	
								1934-35	1933-34
Barley.									
Warsaw: Malting, good quality (zioty p. quintal) . . . . .	16.62	16.62	16.62	16.62	16.65	20.69	15.25	19.60	* 15.87
Braila: Average quality (lei p. quintal). n.240	240	236	230	245	256	* 144	* 244	* 154	
Prague: Malting, av. qual. (cra. p. quintal) 2)	131.00	131.00	129.50	129.50	129.50	131.00	83.00	131.70	* 94.20
Winnipeg: No. 4 Western (cents p. 48 lb.)	32 1/4	27 1/4	29 1/4	30 1/4	30 1/4	51 1/4	32 1/4	45 1/4	36 1/4
Chicago: Feeding (on sample; cents p. 48 lb.)	46	42	43	44	43 1/4	n. 86	46 1/4	72 1/4	54
Minneapolis: No. 2 Feeding (c. p. 48 lb.)	39	35	37	38	38 1/4	82	43 1/4	67 1/4	45 1/4
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3) 4).	16.80	16.80	16.60	16.60	16.60	16.05	16.53	16.16	* 16.17
Antwerp: Danubian (in bond; francs p. q.)	69.00	69.50	69.50	70.00	70.50	67.37	48.75	69.45	49.35
London: English malting, best quality (sh. p. 448 lb.) 5)	42/-	42/-	42/-	42/-	42/4 1/4	39/4 1/4	40/-	38/-	* 39/5
Liverpool and London (c.i.f., parcels; ship. ping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	12/9 1/4	* 19/2 1/4	* 13/9 1/4
Russian (Azoff, Black Sea) . . . . .	14/4 1/4	14/6	14/7 1/4	14/6	14/4 1/4	n. q.	13/1 1/4	n. q.	* 13/7 1/4
Canadian No. 3 Western . . . . .	17/9	17/6	16/2 1/4	16/6	16/2 1/4	24/1 1/4	16/1 1/4	21/10 1/4	17/9 1/4
Californian malting (sh. p. 448 lb.) . . . .	25/-	23/6	23/6	23/6	23/10 1/4	n. q.	22/4 1/4	* 31/6	22/7 1/4
Plata (54-65 kg. p. hl) . . . . .	n. q.	14/9	14/9	14/10 1/4	14/11 1/4	* 19/4 1/4	* 12/6 1/4	18/4	14/2 1/4
Persian . . . . .	* 14/6	* 14/6	* 14/6	* 14/6	* 14/7 1/4	20/6 1/4	13/3 1/4	18/6	* 14/0 1/4
Groningen a): Home grown, winter (fl.p.q.)	4.62	4.65	...	...	...	5.63	4.05	5.30	4.44
Oats.									
Braila: Good quality (lei p. quintal) . . . .	n. q.	n. q.	290	280	303	n. q.	* 164	n. q.	* 148
Winnipeg: No. 2 White (cents per 34 lb.)	30 1/4	28 1/4	30 1/4	31 1/4	31 1/4	44 1/4	29 1/4	42 1/4	33 1/4
Chicago: No. 2 White (cents per 32 lb.)	32	28 1/4	31	n. 30 1/4	31	55	35 1/4	50 1/4	37 1/4
Buenos Aires b): Current quality (paper pesos p. quintal) . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	5.10	3.59	5.39	3.65
Berlin: Home grown (free at Branden- burg stations; Rm. p. quint.) 3)	16.40	16.40	16.20	16.20	16.20	16.25	14.39	16.39	14.92
Paris: Home grown, black and other (de- livery regional depots; frs.p. quintal).	54.25	54.75	56.75	57.00	56.76	46.10	47.40	48.50	48.00
London: Home grown white (sh.p.336lb.) 5)	18/6	18/9	18/9	18/6	18/6	18/6	17/-	20/10	18/1 1/4
Liverpool and London (c.i.f., parcels; ship- ping current month; sh. p. 320 lb.):									
Canadian, No 2 Western (Pacific) 6)	n. q.	n. q.	18/4 1/4	18/9	18/1 1/4	20/11 1/4	* 15/-	20/10 1/4	* 17/4
Plata (f.a. q.) . . . . .	n. q.	* 13/-	* 13/6	* 13/9	* 13/2 1/4	* 12/8	11/2 1/4	13/0 1/4	10/2
Milan (c) (lire p. quintal):									
Home grown . . . . .	98.00	98.00	98.00	98.00	98.00	57.50	51.00	61.25	50.70
Foreign . . . . .	93.50	93.50	93.50	93.50	93.50	57.50	49.80	60.45	50.05
Maize.									
Braila: Average quality (lei p. quintal) . . .	230	220	225	210	215	* 190	206	* 220	* 170
Chicago: No. 3 Yellow (cents p. 56 lb.) . .	10) 60	10) 57 1/4	10) 60	10) n.63	10) 62 1/4	94 1/4	46 1/4	78 1/4	46 1/4
Buenos Aires (b): Yellow Plata (paper pesos p. quintal) . . . . .	4.40	4.40	4.40	4.40	4.40	6.32	4.40	5.72	4.26
Antwerp (in bond; francs p. quintal):									
Yellow Plata . . . . .	53.75	54.00	54.50	53.50	53.70	54.75	54.80	53.70	48.35
Cinquantino (Argentine "Cuarentino")	56.00	56.50	56.50	57.50	57.90	59.50	55.00	58.25	58.00
Liverpool and London (c.i.f., parcels; ship- ping current month; sh. p. 480 lb.):									
Danubian . . . . .	11) 16/1 1/4	11) 15/6	11) 16/3	11) 16/3	11) * 16/3	21/3	16/11 1/4	* 20/-	16/9 1/4
Yellow Plata . . . . .	16/-	15/4 1/4	15/5 1/4	15/6	15/6 1/4	21/1 1/4	16/8 1/4	19/8 1/4	16/7
No. 2 White flat African . . . . .	n. q.	11) 16/-	11) 16/-	11) n. q.	* 16 5/4	* 23/4 1/4	n. q.	21/4 1/4	n. q.
Milan (c): * Alto Milanese (lire p. quint.)	83.50	83.50	83.50	86.00	83.90	54.25	46.80	58.50	58.80

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal. — a) Prices of preceding Tuesday. — b) Thursday prices. — c) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. From August 1935, good quality, not less than 68 kg. per hectoliter — 3) From 16 July 1934 for fodder barley, and from 1 August 1934 for oats, fixed producers' prices for the price region of Berlin city. See *Government Measures*, No 2, p. 57.

4) Sept. 1933-June 1934, spring barley, average quality. — 5) From Aug. 1933, prices on the farm. — 6) June-Dec. 1934 and from May 1935, Atlantic. — 7) Via Atlantic - St. John. — 8) New crop; shipping Jan.-Feb. — 9) Shipping Jan. — 10) New crop. — 11) Dan.-Gal.-Fox. — 12) Afloat. — 13) No. 2 White East African, shipping Jan.-Feb.: 16/6.

DESCRIPTION	13	6	29	22	AVERAGE					Commercial	
	Dec.	Dec.	Nov.	Nov.	Nov.	Dec.	Dec.	Season 1)	1934	1933	
	1935	1935	1935	1935	1935	1934	1933				
Rice (milled).											
Valencia (a): No. 3 Belloch (pesetas p. quintal) . . . . .	...	56.50	56.50	56.50	56.50	54.75	46.10	46.95	43.10		
Milan (b) (lire p. quintal):											
Vialone, oiled . . . . .	195.00	195.00	195.00	195.00	192.10	151.10	187.20	177.10	198.20		
Maratelli, oiled . . . . .	161.00	161.00	160.50	160.50	161.10	127.40	141.20	138.05	139.90		
Originario, white . . . . .	133.00	133.00	133.00	133.50	132.60	101.60	97.40	102.80	95.50		
Rangoon: No. 2 Burma (rupees p. 7500 lb.)	277 1/2	277 1/2	270	265	270	210	182 1/2	201 1/2	194 1/2		
Salgon (Indo-chinese piastres p. quintal):											
No. 1 Round white, 25 % broken . . . . .	...	...	...	...	...	3.45	3.10	3.25	4.08		
No. 2 Japan, 40 % broken . . . . .	...	...	...	...	...	3.30	2.94	3.09	3.90		
Marseilles (a): No. 1 Saigon (c. i. f.; frs. p. quintal) . . . . .	...	52.00	60.00	54.00	67.25	45.37	46.00	45.95	53.10		
London (a) (c. i. f.; shillings p. cwt.):											
No. 3 Spanish Belloch, oiled . . . . .	11/10 1/2	11/10 1/2	11/8 1/2	11/10 1/2	12/3	* 13/-	* 14/-	* 10/9	12/5 1/2		
No. 6 Italian good, oiled . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/9	* 11/1 1/2	11/10 1/2	11/2 1/2		
American Blue Rose, extra fancy . . . . .	17/3	17/-	17/-	16/9	16/8 1/2	* 16/10 1/2	* 16/8	17/3 1/2	16/9 1/2		
No. 2 Rangoon or Basscin (Burma) . . . . .	*) 7/3 1/2	*) 7/4 1/2	*) 7/4 1/2	*) 7/4 1/2	*) 7/4 1/2	*) 6/7 1/2	*) 6/0 1/2	6/7 1/2	6/6 1/2		
No. 1 Saigon . . . . .	*) 6/3	*) 6/9	*) 7/4 1/2	*) 7/6	*) 7/8 1/2	*) 6/8	*) 5/9 1/2	6/3 1/2	6/9 1/2		
Siam Super, white . . . . .	*) 8/1 1/2	*) 8/4 1/2	*) 8/4 1/2	*) 8/4 1/2	*) 8/5 1/2	*) 7/6 1/2	*) 7/2	7/5	8/1 1/2		
Tokyo: Chumai (brown Japanese, average quality. yen p. koku) . . . . .	...	...	...	...	...	29.07	* 21.95	26.09	21.62		
Linseed.											
Buenos Aires (a): Current quality (paper pesos p. quintal) . . . . .	12.55	12.45	12.60	12.55	12.59	11.80	11.92	12.74	10.56		
Antwerp: Plate (in bond; frs. p. quint.)	142.50	142.00	142.00	142.50	144.00	102.75	114.00	107.60	111.70		
London (c. i. f.; £ p. long ton):											
Plate (delivery Hull) . . . . .	10-10-0	9-17-6	9-16-3	9-18-9	9-19-6	9-10-0	9-10-0	10- 0-8	9-11-11		
Bombay bold . . . . .	13- 0-0	12-10-0	12-12-6	12-12-6	12-14-3	11-18-1	11- 4-9	11-17-0	11- 5- 4		
Duluth: No. 1 Northern (quotations of terminal market; cents p. 56 lb.) . . . . .	185 1/2	173	*) 170 1/2	*) 171 1/2	*) 172	188 1/2	172 1/2	186 1/2	156 1/2		
Cotton seed.											
Alexandria (piastres p. ardeb):								1934-35	1933-34		
Upper Egypt . . . . .	65.1	64.7	63.6	60.8	61.4	61.8	39.7	62.0	41.8		
Sakellaridis . . . . .	59.4	59.0	58.5	56.3	57.3	59.2	35.6	57.7	* 37.5		
London: Sakellaridis (c. i. f., delivery Hull; £ p. long ton) . . . . .	n. 6- 3-9	n. 6-3-9	n. 6-2-6	n. 6-5-0	5-17-7	6- 0-7	4- 0-9	5-18-7	4-5-11		
Cotton.											
New Orleans: Middling (cents p. lb.) . . . . .	11.80	12.11	12.15	12.27	11.97	12.79	9.96	12.47	10.90		
New York: Middling (cents p. lb.) . . . . .	12.00	12.20	12.20	12.30	11.99	12.77	10.21	12.46	11.07		
Bombay: M. g. Broach f. g. (terminal market quotations; rup. p. 784 lb.)	*) 220	*) 225	*) 223	*) 229	*) 222 1/2	*) 231 1/2	179 1/2	230 1/2	197		
Alexandria (talaris p. kantar):											
Sakellaridis, f. g. f. . . . .	17.35	17.70	18.10	18.60	17.43	16.05	12.99	15.20	14.44		
Ashmuni-Zagora, f. g. f. 2) . . . . .	14.90	15.10	15.30	14.60	13.87	13.74	10.30	13.34	11.63		
Bremen: Middling (U. S. cents p. lb.) . . . . .	14.05	14.38	14.46	14.62	14.39	14.63	11.45	14.38	12.56		
M. g. Broach, f. g. (pence p. lb.) . . . . .	n. 6.60	n. 6.65	n. 6.70	n. 6.70	n. 6.62	n. 5.97	n. 4.32	n. 6.04	n. 4.81		
Le Havre: Middling (Gulf; frs p. 50 kg.)	247.50	251.00	255.50	257.00	* 252.75	260.00	213.60	250.75	229.85		
Liverpool (pence per lb.):											
Middling, fair . . . . .	n. 7.55	n. 7.72	n. 7.64	n. 7.77	n. 7.62	n. 8.16	n. 6.35	n. 7.95	n. 7.11		
Middling . . . . .	6.50	6.67	6.59	6.77	6.61	7.11	5.25	6.94	6.02		
São Paulo, f. g. f. . . . .	6.90	7.02	6.96	7.12	6.95	7.08	5.55	6.99	6.13		
C. P. Oomra, superfine . . . . .	5.99	6.13	6.09	6.18	6.04	5.60	4.37	5.73	4.92		
M. g. Broach, f. g. . . . .	5.70	5.87	5.96	6.05	5.91	5.69	n. 3.98	5.61	4.62		
Egyptian Sakellaridis, f. g. f. . . . .	9.66	10.18	10.14	10.03	9.76	9.01	7.29	8.52	8.07		
Upper Egyptian, f. g. f. . . . .	7.67	7.91	7.92	7.62	7.45	7.77	5.91	7.55	6.64		

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal.  
— a) Thursday prices. — b) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) From August, Ashmuni, f. g. f. quality only. Averages: Oct. 12.24, Sept. 12.00, Aug. 13.02. — 3) Shipping Jan.-Feb., new crop. — 4) Shipping Feb.-March, new crop. — 5) December futures. — 6) April-May futures.

Description	13	6	29	22	AVERAGE					Commercial Season	
	Dec.	Dec.	Nov.	Nov.	Nov.	Dec.	Dec.				
	1935	1935	1935	1935	1935	1934	1933	1934	1933	1934	1933
<b>Bacon.</b>											
London, Provision Exchange (a) (shill. p. cwt.):											
English, No 1, lean sizable . . . . .	81/6	80/6	80/6	80/-	83/1	89/3	82/2	91/2	...		
Danish, No 1, sizable . . . . .	82/-	82/-	82/-	82/-	85/7	86/-	77/7	87/11	74/5		
Irish, No 1, sizable . . . . .	80/6	80/-	77/6	78/6	82/4	87/-	79/2	90/5	83/4		
Lithuanian, No 1, sizable . . . . .	75/-	75/-	75/-	75/-	78/5	81/-	69/-	82/-	65/5		
Dutch, No 1, sizable . . . . .	77/-	77/-	77/-	77/-	81/2	84/-	71/-	84/-	67/6		
Polish, No 1, sizable . . . . .	73/-	73/-	73/-	73/-	76/5	80/-	67/-	80/11	63/10		
Swedish, No 1, sizable . . . . .	77/-	77/-	77/-	77/-	81/2	82/9	74/-	84/4	70/-		
Canadian, No 1, sizable . . . . .	72/-	72/-	72/-	72/-	75/-	75/10	69/-	80/3	64/6		
<b>Butter.</b>											
Copenhagen (b): Danish (cvs p quint.) . .	226.00	226.00	222.00	220.00	220.50	214.50	184.00	160.75	171.00		
Leeuwarden, Comm. for butter quotations (b) Dutch (cents p.kg.) 1) . .	56	56	56	59	58 1/4	54 1/4	59 1/4	44 1/4	60		
Germany (c) (fixed prices, Rm p. 50 Kg.) 2):											
Butter with quality mark . . . . .	130.00	130.00	130.00	130.00	130.00	130.00	129.79	129.04	112.72		
Creamery butter . . . . .	123.00	123.00	123.00	123.00	123.00	123.00	123.25	120.87	106.25		
London (d): English creamery, finest quality (shillings p. cwt.) . . . . .	121/4	130/8	130/8	130/8	130/8	109/8	128/4	109/6	140/10		
London, Provision Exchange (a) (shill. p. cwt.):											
Danish creamery, unsalted . . . . .	127/6	127/-	125/6	123/6	124/5	123/1	109/-	98/8	103/9		
Estonian, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 67/11	* 84/4		
Latvian, unsalted . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 89/9	* 82/9		
Dutch creamery, unsalted . . . . .	91/-	101/6	105/-	108/-	108/2	* 99/8	104/-	80/4	103/4		
Argentine, finest, unsalted . . . . .	94/6	n. q.	n. q.	n. q.	n. q.	70/9	72/-	* 68/3	* 77/10		
Siberian salted . . . . .	87/6	90/-	n. q.	100/-	* 99/3	n. q.	65/-	* 66/-	* 73/5		
Australian, finest, salted . . . . .	86/6	91/6	97/-	102/6	101/2	70/7	68/-	70/2	80/-		
New Zealand, finest, salted . . . . .	87/6	91/6	97/6	103/6	101/11	71/9	68/3	72/7	81/1		
<b>Cheese.</b>											
Milan (lire p quintal):											
Farmigiano Reggiano, 1st quality, production 1933 3) . . . . .	740.00	740.00	740.00	740.00	739.00	727.50	1,027.00	724.30	* 989.00		
Farmigiano - Reggiano, 1st quality, production 1934 3) . . . . .	695.00	695.00	690.00	690.00	690.00	612.50	853.00	614.60	806.00		
Green Gorgonzola, mature, choice . .	560.00	560.00	540.00	540.00	544.00	415.00	413.00	412.60	473.70		
Rome Roman Pecorino, choice (lire p. q)	* 1,125.00	* 1,125.00	* 1,125.00	* 1,175.00	* 1,162.50	674.50	767.50	658.65	1,029.00		
Alkmaar - Edam 40 + (40 % butterfat, with the country's cheesemark) factory cheese, small (florins p. 50 kg.) . .	19.00	19.00	19.00	19.00	18.70	18.75	22.50	20.98	22.40		
Gouda. Gouda 45 + (whole milk cheese, with the country's cheesemark) home made (florins p. 50 kg.) . . . . .	23.00	24.00	24.00	24.00	24.70	20.75	* 26.38	22.52	26.59		
Kempten (c) (Rpf. p. 1/2 kg.):											
Soft cheese, green, 20 % butterfat . .	26	26	26	26	26	26	24 1/4	23 1/4	20 1/4		
Emmenthal from the Allgau, whole milk cheese, 1st quality . . . . .	77	77	77	77	77	73	71	71 1/4	72 1/4		
London, Provision Exchange (a) (shill. p. cwt.):											
English Cheddar, finest farmers . . .	77/-	77/-	77/-	77/-	73/-	86/-	92/-	* 83/5	86/3		
English Cheshire, Nat Mark Selected .	89/10	93/4	93/4	91/-	90/6	91/-	121/4	83/4	94/4		
Italian Gorgonzola (d) . . . . .	n. q.	119/-	114/4	109/8	109/8	82/6	77/9	82/9	85/3		
Dutch Edam, 40 + (d) . . . . .	50/-	51/-	55/-	55/-	53/10	46/7	70/9	54/5	59/8		
Canadian, finest white . . . . .	57/-	58/-	57/-	58/-	57/10	55/4	49/-	54/-	59/8		
New Zealand, finest white . . . . .	51/9	51/9	53/3	53/9	52/2	44/8	47/8	46/5	46/10		

\* Indicates that the product, during part of the period under review, was not quoted. — n. q. = not quoted — n. = nominal — a) Average prices Thursday, and Friday morning. — b) Thursday prices. — c) Wednesday prices. — d) Average prices for the week.

1) Home prices are increased by a consumption-duty which was, on 15 Nov 1935 — 2) See note on page 306 of the *Crop Report* of April 1934. — 3) Prices of 1933-cheese are compared for the preceding years with those of cheese made in 1932 and 1931 respectively, prices of 1934-cheese with those of cheese made in 1933 and 1932. The yearly averages refer to periods from Sept. to August. — 4) Price for exportation.

DESCRIPTION	13	6	29	22	AVERAGE					
	Dec.	Dec.	Nov	Nov.	Nov.	Dec.	Dec.	Commercial		
	1935	1935	1935	1935				Season 1)	Season 2)	
					1935	1934	1933			
Eggs.										
Antwerp, auction: Belgian, average qual- (frs. p. 100) . . . . .	68.00	68.00	70.00	70.00	73.50	45.75	64.20	42.80	48.40	
Denmark (a): Danish for export (crs. per quintal) . . . . .	166.00	176.00	176.00	176.00	176.00	146.80	150.00	103.60	105.85	
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100) 2):	..	...	...	...	...	5.00	5.14	3.96	3.48	
Fixed price for export into Germany.	...	...	...	...	...	4.37	5.14	3.34	3.48	
Price for other destinations . . . . .	...	...	...	...	...	...	...	...	...	
Warsaw (b): Polish, average weight 50 gr. each, different colours (zloty p. 1440, including box) . . . . .	...	...	135.00	135.00	134.71	140.00	160.00	106.50	123.60	
Berlin (c) German, big, new laid (Rm. p. 100):	...	...	...	...	...	...	...	...	...	
marked «GIS», 65 gr. each . . . . .	11.50	11.50	11.50	11.50	11.50	12.00	13.37	10.37	10.41	
marked «GIB», 55/60 gr. each. . . . .	10.00	10.00	10.00	10.00	10.00	11.00	12.39	9.03	9.05	
London, Egg Exchange (d) (sh. p. great hundred) . . . . .	21/4 1/2	23/6	24/-	24/-	24/1 1/2	*20/9 1/2	*21/7	15/5	15/10 1/2	
English, National mark, specials . . . . .	13/6	14/9	15/3	n. q.	*13/9	*14/6	n. q.	*11/0 1/2	*11/1	
Belgian, 15 1/2 lb. p. 120 . . . . .	17/10 1/2	17/7 1/2	18/4 1/2	18/-	*17/6 1/2	*16/11 1/2	*17/11	12/5 1/2	12/9 1/2	
Danish, 18 lb. p. 120 . . . . .	22/-	n. q.	24/-	n. q.	*23/6	*19/0 1/2	*20/11	12/9 1/2	15/1	
Northern Irish, 18 lb p. 120 . . . . .	n. q.	19/6	19/3	18/3	*18/6 1/2	*16/3	n. q.	13/5	*14/10 1/2	
Dutch, all brown, 18 lb p. 120 . . . . .	8/10 1/2	8/9 1/2	8/9	8/6	8/6	*8/8 1/2	*8/3 1/2	6/10 1/2	*7/4 1/2	
Polish, 55/54 grams each 3) . . . . .	9/3	9/3	9/1 1/2	9/3	9/2 1/2	*8/9	*9/4	*8/3 1/2	*9/10	
Chinese, violet . . . . .	12/10 1/2	12/6	12/6	12/6	12/3 1/2	*12/1	*12/8 1/2	*11/5 1/2	*12/4 1/2	
Australian, 16 lb p. 120 . . . . .										
Maritime freights (RATES FOR ENTIRE CARGOES).										
Shipments of Wheat and Maize.										
Danube to Antwerp/Hamburg. } (shill. per Black Sea to Antwerp/Hamb. } long ton)	n. q. n.10/3	n. q. n.10/3	n. q. 11/3	n. q. 11/3	n. q. 11/3	n. 13/9 10/0 1/2	*14/5 10/8	*13/11 *9/11	*14/1 10/3	
St. John to Liverpool 4) . . . . .	*2/0 1/2	*2/0 1/2	*2/0 1/2	*2/0 1/2	*2/0 1/2	1/6	1/9	*1/6	*1/11	
Port Churchill to United King- dom . . . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*2/9	*2/9	
Montreal to United Kingdom. } (shill. per Gulf to United Kingdom 4) } 480 lb)	2/4	2/-	2/-	2/-	*2/-	n. q.	n. q.	*1/6 1/2	*1/4 1/2	
New York to Liverpool 4) . . . . .	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6 1/2	
Northern Range to U.K./Cont. )	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	
North Pacific to United Kingdom (sh. per long ton) . . . . .	2/-	2/-	2/-	2/-	2/-	n. q.	n. q.	n. q.	*1/9	
Vancouver to Yokohama 4) (U.S.A. \$ p. short ton) 5) . . . . .	21/-	21/-	20/6	20/6	20/6	19/-	19/6	*18/1 1/2	*20/1	
La Plata Down River 6) ) Bahia Blanca to U. K./ ) Continent . . . . .	...	...	...	...	...	2.75	2.85	...	2.41	
La Plata Up River 7) /Neco- chea to U.K./Continent. )	17/-	n. q.	16/9	16/9	*16/9	14/11	15/3 1/2	14/11	14/1	
Western Australia to U. ) K./Continent . . . . .	18/-	18/-	18/-	18/-	17/10 1/2	16/7 1/2	17/6 1/2	16/2	15/9	
	27/6	27/6	27/6	27/6	27/6	25/4 1/2	n. 25/6	24/6	23/10 1/2	
Shipments of Rice.										
Saigon to Europe . . . . . (shill. per Burma to U. K./Continent . . } long ton)	27/- n. q.	27/- n. q.	26/4 n. q.	26/- n. q.	25/10 1/2 n. q.	25/- n. q.	24/10 1/2 n. q.	24/2 1/2 *23/3	23/5 1/2 *23/1 1/2	

\* Indicates that the product, or the maritime freight, during part of the period under review, was not quoted. — n. q. = not quoted. — n. = nominal — a) Average prices for weeks commencing on Fridays indicated. — b) Average prices for weeks commencing on preceding Mondays. — c) Prices Thursday to Saturday of each week. — d) Prices of preceding Monday.

1) Shipments of wheat and maize: Aug. — July. — 2) See note on p. 307 of the *Crop Report* of April 1934. — 3) From Nov. 1933, 51/52 grams each. — 4) Rates for parcels by liners. — 5) May-Oct. 1934 and from 25 Jan 1935, Canadian \$. 6) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 7) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 8) Minimum rate.



## EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1)

NATIONAL CURRENCIES	Exchange rates				Percentage bonus (+) or loss (-)			
	13 Dec. 1935	6 Dec. 1935	29 Nov. 1935	22 Nov. 1935	13 Dec. 1935	6 Dec. 1935	29 Nov. 1935	22 Nov. 1935
Germany: free reichsmark. . . . .	123.900	124.200	124.450	124.120	+ 0.4	+ 0.6	+ 0.8	+ 0.5
Argentina: paper peso †) 2) . . . . .	6) 84.072	101.700	101.733	101.667	- 61.8	- 53.8	- 53.8	- 53.8
Belgium: belga. . . . .	51.950	52.200	52.300	52.225	+ 0.1	+ 0.6	+ 0.8	- 0.7
Canada: dollar . . . . .	3.050	3.052	3.060	3.045	- 41.2	- 41.1	- 41.0	- 41.3
Denmark: crown . . . . .	67.775	68.125	68.125	67.950	- 51.2	- 51.0	- 51.0	- 51.1
Spain: peseta . . . . .	42.225	42.175	42.175	42.100	- 57.8	- 57.8	- 57.8	- 57.9
Egypt: pound 3) . . . . .	15.175	15.255	15.260	15.250	- 39.8	- 39.5	- 39.5	- 39.5
United Kingdom: pound sterling . . . . .	3.081	3.090	3.092	3.087	+ 0.7	+ 0.9	+ 1.0	+ 0.8
United States: dollar . . . . .	20.375	20.355	20.375	20.342	+ 0.3	+ 0.2	+ 0.3	+ 0.2
France: franc . . . . .	55.625	56.250	56.500	57.500	- 38.6	- 37.9	- 37.7	- 36.6
Indo-China: piaster 4) . . . . .	114.571	115.175	115.213	115.137	- 39.4	- 39.1	- 39.1	- 39.1
Hungary: pengő 5) . . . . .	n. q.	n. q.	n. q.	24.900	n. q.	n. q.	n. q.	8.7
India: rupee †) . . . . .	88.900	89.369	89.017	88.958	- 65.6	- 65.4	- 65.5	- 65.6
Italy: lira . . . . .	208.870	209.110	209.350	208.350	+ 0.3	+ 0.5	+ 0.5	+ 0.0
Japan: yen †) . . . . .	58.100	58.100	58.125	57.950	- 0.1	- 0.1	- 0.0	- 0.3
Netherlands: florin . . . . .	1.550	1.550	1.550	1.575	- 50.0	- 50.0	- 50.0	- 49.2
Poland: zloty . . . . .	78.225	78.625	78.625	78.600	- 43.7	- 43.4	- 43.4	- 43.4
Rumania: leu 5) . . . . .	12.762	12.775	12.775	12.750	- 0.3	- 0.2	- 0.2	- 0.4
Sweden: crown . . . . .								
Czechoslovakia: crown . . . . .								

1) The exchange rate represents the value of 100 units of the national currency (one unit for the dollar and the pound sterling) expressed as far as possible in Swiss francs on the Zurich Exchange. With regard to the currencies marked thus † a conversion has been made, the original exchange rates on London being converted into Swiss francs by means of the rate of the £ in Zurich. — 2) Fixed exchange rates. — 3) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 4) As the relation between the Indo-Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given. — 5) Bank notes. — 6) Free rate

## VARIATIONS IN THE INDEX-NUMBERS OF PRICES

On the following pages the index-numbers of prices of agricultural products and other price-indices, of interest to the farmer, are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

*Percentage variations in the index-numbers for November 1935.*

COUNTRIES	Comparison with October 1935		Comparison with November 1934	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany . . . . .	+ 0.5	+ 0.3	+ 3.6	+ 1.9
England and Wales . . . . .	- 0.8	+ 0.6	- 0.8	+ 6.5
Argentina . . . . .	- 3.4	-	+ 7.3	-
Canada . . . . .	- 1.2	- 0.5	+ 6.2	+ 2.1
United States: Bur. of Agric. Economics . . . . .	- 0.9	-	+ 6.9	-
United States: Bur. of Labor . . . . .	- 0.9	...	+ 9.5	+ 5.4
Finland . . . . .	- 1.3	- 1.1	+ 2.6	+ 1.1
Hungary . . . . .	- 1.1	0.0	+ 21.1	+ 14.5
Italy . . . . .	...	...	...	...
New Zealand . . . . .	+ 3.7	-	+ 29.4	-
Netherlands . . . . .	- 5.7	...	- 2.0	...
Poland . . . . .	...	...	...	...
Yugoslavia: . . . . .				
plant products . . . . .	+ 1.1	+ 1.7	+ 39.6	+ 13.6
livestock products . . . . .	+ 4.8		+ 5.9	

# **INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER <sup>1)</sup>**

DESCRIPTION	Nov.	Oct.	Sept.	August	July	June	Nov.	Nov.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>Germany</b>										
(Statistisches Reichsamt, 1913 = 100).										
Foodstuffs of plant origin . . . . .	111.3	111.0	110.7	114.5	116.2	115.0	112.7	100.0	108.7	98.7
Livestock . . . . .	92.3	91.5	90.4	88.6	85.9	83.2	78.5	70.6	70.9	64.3
Livestock products . . . . .	110.4	110.2	110.0	109.6	105.5	103.4	110.5	113.7	105.0	97.5
Feeding stuffs . . . . .	104.8	103.9	103.4	103.7	103.8	104.6	104.7	92.1	102.0	86.4
Total agricultural products . . . . .	104.7	104.2	103.7	104.3	103.1	101.5	101.1	93.7	95.9	86.8
Fertilizers <sup>2)</sup> . . . . .	65.7	67.0	66.7	65.9	64.9	65.7	65.0	70.5	68.7	70.2
Agricultural dead stock . . . . .	111.2	111.1	111.1	111.1	111.1	111.1	111.0	111.3	111.1	111.6
Finished manufactures ("Konsumgüter") . . . . .	124.0	123.9	123.8	124.1	123.9	123.8	122.1	113.8	117.3	111.7
Wholesale products in general . . . . .	103.1	102.8	102.3	102.4	101.8	101.2	101.2	96.0	98.4	93.3
<b>England and Wales</b>										
(Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products <sup>3)</sup> . . . . .	119	120	128	120	120	117	120	113	119	111
Feeding stuffs . . . . .	83	86	81	80	83	86	96	80	91	85
Fertilizers . . . . .	89	88	88	88	89	89	89	88	90	90
Wholesale products in general <sup>4)</sup> . . . . .	101.5	100.9	100.1	98.9	99.2	98.5	95.3	93.3	96.3	93.7
<b>Argentina</b>										
(Banco de la Nación Argentina) 1926 = 100.										
Cereals and linseed . . . . .	68.3	72.1	70.7	64.3	62.5	63.5	69.2	51.0	68.1	54.4
Meat . . . . .	89.6	90.9	91.5	88.6	84.7	80.0	83.4	71.4	78.5	65.9
Hides and skins . . . . .	92.4	91.9	80.0	76.3	75.2	77.3	69.6	61.4	71.6	63.9
Wool . . . . .	89.6	84.5	79.9	78.7	75.4	69.2	72.9	66.0	84.3	54.6
Dairy products . . . . .	97.3	113.4	120.2	104.6	100.5	82.6	65.5	60.4	62.3	57.4
Forest products . . . . .	96.7	94.9	91.5	91.8	91.8	90.4	70.1	71.8	73.1	72.5
Total agricultural products . . . . .	76.0	78.7	76.5	71.0	68.8	68.3	70.8	56.1	70.5	56.9
<b>Canada</b>										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100										
Field products (grain, etc.) . . . . .	57.8	59.3	58.3	55.5	55.7	55.1	55.7	46.7	53.8	45.7
Livestock and livestock products . . . . .	77.1	76.7	75.5	72.4	71.1	72.0	70.4	67.7	67.7	59.6
Total Canadian farm products . . . . .	65.0	65.8	64.7	61.8	61.5	61.4	61.2	54.6	59.0	51.0
Fertilizers . . . . .	75.8	75.8	75.8	75.8	75.8	75.8	75.8	76.2	75.9	73.8
Consumers' goods (other than foodstuffs, beverages and tobacco) . . . . .	75.4	75.3	75.0	75.4	75.3	75.7	76.7	77.0	77.0	76.0
Wholesale products in general . . . . .	72.7	73.1	72.3	71.6	71.5	71.5	71.2	68.9	71.6	67.2

<sup>1)</sup> For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 237; December 1934, page 696).  
<sup>2)</sup> Revised series from October 1934. — <sup>3)</sup> Revised index-numbers due to the Wheat Act payments and, from 1 September 1934, the Cattle Emergency Act payments. — <sup>4)</sup> Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	Nov.	Oct.	Sept.	August	July	June	Nov.	Nov.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934	1933
<b>United States</b>										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100										
Cereals . . . . .	90	101	97	96	96	102	109	75	93	62
Cotton and cottonseed . . . . .	99	94	90	97	02	103	107	76	99	64
Fruits . . . . .	83	82	82	87	198	100	94	70	100	74
Truck crops (market garden crops) . . . . .	136	120	101	92	93	96	107	127	102	105
Meat animals . . . . .	117	125	131	129	116	119	72	59	68	60
Dairy products . . . . .	111	104	102	98	97	99	105	92	96	82
Chickens and eggs . . . . .	140	132	126	111	107	108	125	102	89	75
Miscellaneous . . . . .	103	103	96	102	85	86	123	101	108	83
Total agricultural products . . . . .	108	109	107	106	102	104	101	80	90	70
Commodities purchased 1) . . . . .	122	123	123	126	126	127	126	116	122	109
Agricultural wages 1) . . . . .	—	—	102	—	99	—	2) 93	2) 86	88	80
<b>United States</b>										
(Bureau of Labor)										
1926 = 100.										
Cereals . . . . .	77.9	86.4	83.5	79.3	78.3	76.9	87.2	61.3	74.5	53.1
Livestock and poultry . . . . .	83.1	86.6	92.0	91.6	82.8	84.8	54.0	41.2	51.5	43.4
Other farm products . . . . .	73.5	70.3	70.4	71.4	72.9	74.3	75.8	64.3	70.5	55.8
Total agricultural products . . . . .	77.5	78.2	79.5	79.3	77.1	78.3	70.8	56.6	65.3	51.4
Agricultural implements . . . . .	94.6	93.7	93.7	93.6	93.6	93.6	91.9	83.7	89.6	83.5
Fertilizer materials . . . . .	67.5	67.2	67.2	66.8	65.7	65.7	64.6	67.8	67.1	65.9
Mixed fertilizers . . . . .	67.6	67.9	67.8	68.1	68.6	74.5	73.5	68.5	72.5	64.5
Cattle feed . . . . .	69.1	71.6	67.9	71.3	78.6	92.2	108.2	63.5	89.4	57.9
Non-agricultural commodities . . . . .	81.1	...	80.8	80.6	79.8	80.0	77.7	74.2	76.9	69.0
Wholesale products in general . . . . .	80.6	...	80.7	80.5	79.4	78.9	76.5	71.1	74.9	65.9
<b>Finland</b>										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals . . . . .	84	84	77	78	79	79	78	81	82	88
Potatoes . . . . .	59	59	65	83	89	88	56	42	49	77
Fodder . . . . .	55	60	59	55	68	67	64	77	72	72
Meat . . . . .	69	71	77	81	79	72	70	58	71	64
Dairy products . . . . .	92	90	85	84	82	77	88	82	75	75
Total agricultural products . . . . .	78	79	77	77	78	75	76	73	73	74
Wholesale products in general . . . . .	91	92	91	90	90	90	90	90	90	89
<b>Hungary</b>										
(Central Bureau Statistics)										
1913 = 100										
Agricultural and livestock products . . . . .	86	87	82	79	79	75	71	54	—	—
Wholesale products in general . . . . .	95	95	92	89	90	87	83	70	—	—
<b>Italy</b>										
(Consiglio Provinciale dell'Economia Corporativa di Milano)										
1913 = 100.										
National agricultural products . . . . .	...	...	...	379.6	357.4	359.6	314.9	276.7	297.9	280.7
Wholesale products in general . . . . .	...	340.7	337.4	329.2	319.1	314.5	277.2	275.3	275.8	283.4
<b>New Zealand</b>										
(Census and Statistics Office)										
Average 1909-13 = 100.										
Dairy products . . . . .	111.6	111.4	97.6	90.8	88.7	79.5	76.3	90.7	77.5	84.0
Meat . . . . .	164.8	150.2	151.0	148.0	151.5	150.2	147.6	143.8	152.2	120.7
Wool . . . . .	93.3	92.0	80.4	85.1	84.4	84.8	73.4	76.9	110.0	69.8
Other pastoral products . . . . .	118.3	112.5	107.9	100.7	100.7	98.5	81.7	89.5	80.2	74.5
All pastoral and dairy products . . . . .	122.2	117.6	108.7	105.3	105.2	100.6	93.9	99.9	104.5	88.4
Field products . . . . .	124.6	125.6	125.4	126.3	124.5	124.7	121.4	115.5	120.6	115.8
Total agricultural products . . . . .	122.2	117.8	109.2	106.0	105.8	101.3	94.4	100.3	104.7	89.2

DESCRIPTION	Nov.	Oct.	Sept.	Aug.	July	June	Nov.	Nov.	Year	
	1935	1935	1935	1935	1935	1935	1934	1933	1934-35 2)	1933-34 2)
<b>Norway</b>										
(Kegl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals . . . . .	143	143	142	143	148	145	136	115	126	112
Potatoes . . . . .	138	139	132	168	240	257	111	89	132	103
Pork . . . . .	121	118	113	107	93	94	89	86	83	81
Other meat . . . . .	144	143	148	161	150	138	129	99	137	110
Eggs . . . . .	135	132	103	99	79	75	129	127	92	85
Dairy products . . . . .	140	140	140	139	139	138	132	131	132	126
Concentrated feeding stuffs . . . . .	129	129	126	125	126	111	120	95	109	96
Malze . . . . .	121	118	116	114	115	95	110	80	101	83
Fertilizers . . . . .	83	83	83	83	78	78	72	83	81	87
<b>Netherlands</b>										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products . . . . .	50	53	51	52	53	58	58	59	58	59
Livestock products . . . . .	40	53	50	48	48	48	48	52	49	53
Total agricultural products . . . . .	50	53	51	49	49	50	51	54	51	55
Agricultural wages . . . . .	69	69	69	69	69	69	71	74	71	74
Wholesale products in general 1) . . . .	...	52.8	50.7	49.4	50.1	50.7	52.1	51.4	52.8	50.1
<b>Poland</b>										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products . . . . .	...	33.7	32.5	29.6	33.1	37.2	32.3	34.4	35.6	41.1
Meat animals . . . . .	...	40.4	42.1	45.3	37.5	32.4	33.9	41.7	36.7	42.5
Dairy products and eggs . . . . .	...	45.5	43.3	40.2	38.8	37.5	47.1	54.9	41.2	46.7
Products directly sold by farmers . . . .	...	38.1	37.7	36.7	35.6	35.6	35.6	40.6	37.0	42.6
Flour and groats . . . . .	...	36.7	35.8	34.7	33.8	36.0	38.4	39.1	38.8	47.8
Meat and lard fat . . . . .	...	49.2	50.2	47.3	43.1	37.1	38.2	49.4	43.5	49.8
Sugar, alcohol, beer . . . . .	...	79.4	79.4	79.3	79.3	79.3	85.6	90.2	88.6	90.3
Products of agricultural industries . . .	...	55.0	55.1	53.7	51.9	50.6	53.8	59.4	56.7	62.4
Total agricultural products . . . . .	...	46.5	46.3	45.1	43.7	43.0	44.6	49.9	46.8	52.4
Commodities purchased . . . . .	...	67.2	66.7	66.5	66.5	66.8	68.3	71.8	70.6	72.9
Wholesale products in general . . . . .	...	54.5	54.2	53.6	52.9	52.6	53.6	57.6	55.8	59.1
<b>Yugoslavia</b>										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100										
Plant products . . . . .	82.5	81.6	78.1	67.6	60.3	60.1	59.1	53.7	57.4	57.2
Livestock products . . . . .	58.9	56.2	53.6	53.1	55.6	58.5	55.6	58.2	55.4	57.1
Industrial products . . . . .	69.4	68.8	67.3	66.4	65.7	65.7	65.3	69.1	67.4	70.8
Wholesale products in general . . . . .	71.2	70.0	67.8	64.8	63.3	63.9	62.7	63.1	63.2	64.4

1) Calculated by the the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100 — 2) Agricultural year: Norway, 1st April-31 March; Netherlands, 1st July-30 June — 3) Calendar year.

# RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium (2)	Canada (3)	Denmark	Egypt	Spain	Switzerland	United States (4)	France Indo-China (5)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czechoslovakia (6)
Germany . . . . .	Reichsmark	1.000	0.561	11.898	0.238	0.889	4.819	1.235	0.403	0.680	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	9.648	
Argentina . . . . .	Paper peso	1.782	1.000	21.203	0.424	1.584	8.586	2.200	0.718	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	17.191	
Belgium . . . . .	Franc (2)	0.084	0.047	1.000	0.020	0.075	0.040	0.104	0.034	0.511	0.082	0.114	0.055	0.380	0.040	0.050	0.178	3.347	0.811	
Canada . . . . .	Dollar (3)	4.198	2.356	49.948	1.000	3.731	20.230	5.183	1.693	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	40.501	
Denmark/Sweden . . . . .	Crown	1.125	0.631	13.385	0.268	1.000	5.422	1.389	0.454	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	10.854	
Egypt . . . . .	Piastre	0.207	0.116	2.469	0.049	0.184	1.000	0.256	0.083	1.262	0.203	0.283	0.135	0.939	0.099	0.123	0.441	8.264	2.002	
Spain/Switzerland . . . . .	Peseta/Fr.	0.810	0.455	9.638	0.193	0.720	3.903	1.000	0.327	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	7.815	
United States . . . . .	Dollar (4)	2.479	1.391	29.500	0.591	2.204	11.948	3.061	1.000	15.074	2.427	3.377	1.618	11.221	1.185	1.469	5.265	98.737	23.920	
France/Indo-China (5) . . . . .	Franc	0.164	0.092	1.957	0.039	0.146	0.793	0.203	0.066	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.587	
Great Britain . . . . .	Shilling	1.021	0.573	12.154	0.243	0.908	4.923	1.261	0.411	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	9.856	
Hungary . . . . .	Pengo	0.734	0.412	8.736	0.175	0.653	3.580	0.905	0.296	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	7.084	
India . . . . .	Ruppee	1.532	0.860	18.231	0.365	1.362	7.384	1.892	0.618	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	14.783	
Italy . . . . .	Lira	0.221	0.124	2.629	0.053	0.196	1.065	0.273	0.090	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	2.131	
Japan . . . . .	Yen	2.092	1.174	24.897	0.498	1.860	10.084	2.583	0.843	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	20.189	
Netherlands . . . . .	Florin	1.687	0.947	20.077	0.402	1.450	8.132	2.083	0.681	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	16.280	
Poland . . . . .	Zloty	0.471	0.264	5.603	0.112	0.419	2.269	0.581	0.190	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	4.543	
Romania . . . . .	Leu	0.025	0.014	0.299	0.006	0.022	0.121	0.031	0.010	0.153	0.025	0.034	0.019	0.114	0.012	0.015	0.053	1.000	0.242	
Czechoslovakia . . . . .	Crown (6)	0.103	0.058	1.233	0.025	0.092	0.499	0.128	0.042	0.630	0.102	0.141	0.067	0.469	0.049	0.062	0.220	4.127	1.000	

(1) Each quotation shows the par-value of the moneys named in the column headed "Unit of currency," calculated in terms of the currency of the Countries printed in the heading. — (2) From 31 March 1935 the franc represents only 2 % of its previous gold value. — (3) Till 31 January 1934 also parity of the United States. — (4) New parity as from 31 January 1934. — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only 1/10 of its previous gold value.

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OF

## AGRICULTURAL SCIENCE AND PRACTICE

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### ORIGINAL ARTICLES

#### IMPROVEMENTS IN CEREAL PRODUCTION IN TUNIS

##### IMPORTANCE OF VARIOUS CROPS.

The great plant resources in Tunis, in addition to forests and alfa-grass, are, according to statistics in 1932; olives, palms, vines and fruit trees which occupy an area of about 400 000 hectares; annual crops which are cultivated over an area of 1 650 000 hectares and may be distributed, in proportion to their total area, as follows:—

Wheat	Barley	Oats	Maize and Sorghum	Beans and chick-peas	Various	Total
58	37	1.3	1	2.5	0.2	100

Wheat and barley occupy 95 % of the area devoted to annual crops, wheat being of first importance.

The improvement of cereals, and particularly wheat, is therefore one of the fundamental problems of agricultural improvement in Tunis.

##### HISTORY.

Cereal breeding was first undertaken in 1906 by the Professor of Botany at the Colonial School of Agriculture of Tunis, on the system of individual selection followed by line breeding.

Numerous collections of varieties of cereal plants, and the introduction of seeds from France and foreign countries supplied the material for this work of selection.

The results of the first two years, showing the existence of lines very different from the point of view of productivity and resistance to drought, lodging, diseases, etc., decided the Government of the Protectorate to give its sanction to this enterprise by establishing in 1908, an Experiment Station, attached to the Chair of Botany.

The most important pure lines of wheat, barley and oats were tested, in 1910, in 15 regional, trial fields distributed throughout the Regency; and their multiplication on the estate of the Colonial School of Agriculture of Tunis made possible the sale of seeds of pure lines of wheat and barley in 1911.

The advantages of cultivating pure lines of cereals were immediately appreciated by farmers. In order to give the work of plant improvement the necessary scope, the Government established, on 9 September, 1913, the Botanical Service at Ariana (outskirts of Tunis) on a estate which soon was extended to 150 hectares.

The period of hostilities suspended the organisation of the Service which confined its activities to producing and selling seeds of varieties already selected. In 1919 the Botanical Service was able to begin work again, complete its installation and undertake numerous crossings the result of which has been decided progress in crop improvement and especially in wheat.

The necessity for a parallel evolution in methods of cultivation and plants cultivated obliged the Botanical Service to study the adaptation of plants to environment and to attach to the genetic laboratories, laboratories for plant pathology, chemistry and agrology, physics and ecology. Finally, the desire to specialise in Tunis in the production of baking wheats supplementary to production in France necessitated the establishment of a Technological Laboratory of Wheat, Flour and Bread.

By the Decree of 16 February, 1932, the Botanical Service became the Botanical and Agronomical Service, in charge of the study of all questions concerning plant production and comprising the Central Station of El Ariana, the laboratories of the Colonial School of Agriculture of Tunis, two experimental oil factories, an arboretum, fruit-growing stations and about 20 regional trial fields.

The attempt at cereal improvement in 1906 thus led to the constitution of an autonomous Service engaged in the improvement of plant production.

The limits of this article only permit a description of the various stages in the improvement of Cereals and of the present organisation for maintaining the purity of crops, keeping in view also the close connection that exists between the progress achieved by genetics and that which has resulted from suitable adaptation of new varieties to conditions of environment and economic requirements.

## I WHEAT.

*Condition of this cultivation in 1906.* — At this time Tunis only produced hard wheats (*Triticum durum*).

The soft wheats only existed as occurring mixed in with crops of hard wheat. The introduction of French varieties of soft wheat, attempted by a certain number of farmers, was unsuccessful and confirmed cereal growers in their opinion that the cultivation of soft wheats was not suitable for Tunis.

From the native methods of cultivation, very primitive and extensive, the colonists had not gained any agricultural tradition compatible with their very

legitimate desire to farm the land in a more lucrative manner. Insufficient and often unduly delayed preparation of wheat growing land resulted in yields of not more than 12 to 15 quintals per hectare, even under the most favourable conditions.

The popularisation of the work of the Savlôf laboratory made known the methods of separation of pure lines and the advantages derived from pure cultivations and opened up new prospects for selection work which should prove very fruitful. The progress made in genetics, resulting from there discovery of the laws of hybridisation in 1900, provided breeders with precise rules for obtaining new plant forms. It was in the light of this knowledge that the work of cereal improvement was undertaken in Tunis and this work should be of interest to all technicians.

#### A. — GENETICS.

##### (a) Hard wheat (*Triticum durum*. Desf).

This species was represented by a great number of forms for two reasons:—

(1) The cultivation of hard wheat, practised from very early times in this country, had subjected this species to very varied conditions of environment, from the mountainous and rainy North coast (more than 1 m. annual rainfall in the North-East) to the arid plains of the Centre and South where the isohyet of 200 mm. marks the approximate limit of wheat growing without irrigation. North Africa is one of the principal regions where polymorphism of the species *Triticum durum* is found.

(2) The frequent years of deficient harvests necessitated the importation of hard wheats and thus there were introduced into the country numerous foreign types which contributed to the extreme diversity of hard wheats rarely subjected to the simplest forms of mass selection.

Several hundreds of types of hard wheat have been collected in the country, isolated as pure lines by *individual selection and line breeding* and compared with each other both by the Central Station and in the regional trial fields established in 1910.

The first objective was to find lines that were resistant to drought and of good semolina quality.

A fairly large number of lines were first multiplied, all amber coloured and flinty (those with red grains were systematically eliminated), and adapted to the various conditions of environment. This number was gradually reduced to a few individuals which appeared to satisfy all requirements.

*Sbei 192*. Resistant to lodging in spite of the long straw and large heavy ears, but subject to blast. Suitable for rich soils well provided with water, A good semolina wheat.

*Mahmoudi ap<sup>3</sup>*. Shorter with less heavy ears and rather more particular as to soil and water requirements. Suitable for the valleys in the North with a good rainfall, liable to lodging, a good semolina wheat.

*Mahmoudi 552*. Recently bred. Appears to be suitable for replacing the previous variety owing to its greater productivity.

*Biskri ac<sup>2</sup>*. Long straw, relatively few leaves, rather narrow ears. A variety suitable for all districts on account of its resistance to drought. Very pale-coloured grains which make it the best semolina wheat.

*Roussia 752*. Recently bred. Suitable for the humid regions in the North owing to its resistance to black rust (*Puccinia graminis*).

*Biskri* tends to be an important crop among European farmers.

The native farmers still cultivate the variety *Hamira* of which the line *AC<sup>3</sup>* had been grown by the Botany and Agronomy Service for some time. The grains are golden-amber colour, much appreciated by semolina manufactures. Its unsuitability for bread-making when mixed with soft wheats has resulted in it being abandoned by the Service which has established the rule to grow such hard wheats only as may be considered as improving soft wheats, when the prospects of marketing semolina appear inadequate.

The defect common to all these wheats is that they are late and have a too great vegetative development; their growth is liable to be adversely affected by spring drought; their maturation is often cut short by a hot wind resulting in blast; they are liable to black rust.

The introduction of Algerian and Moroccan varieties has not resulted in valuable acquisitions from the point of view of early ripening and none of these varieties have been retained.

Various varieties from Greece, Cyprus and Asia Minor, however, have provided relatively early lines which are at present being tested in the regional trial fields. It is probable that they will be suitable for the Centre and South but not for the more humid regions in the North where, on account of their early maturity they are subject to spotting.

Attempts have been made by crossing, to correct the faults mentioned above. The crossing of hard wheats with lines of *Triticum pyramidale* from Egypt has provided new genotypes with short straw, less foliage, early ripening, but generally susceptible to yellow rust (*Puccinia glumarum*) and liable to spotting. Only one line of *Mahmoudi ap 4* × *Pyramidale 35* is still being tested in the regional trial fields.

Hard wheats resistant to spotting have been sought for by crossings with *Triticum persicum* Vav. which according to the Russian geographical tests, retains its flinty quality in all latitudes. The persistence of this quality has not been proved either in the pure lines of *T. persicum* or in its hybrids with *T. durum*. The question of resistance to spotting has not been solved.

The crossings *T. durum* × *T. turgidum* with a view to increasing fertility of the ears has had no important results, the hybrids being very subject to, spotting.

At the present time crossing is confined to pure lines of native hard wheat, with good semolina qualities, and varieties of early wheats which have been introduced.

The improvement of hard wheats both by breeding local varieties and introduced varieties, and by intra-specific or interspecific crossing (between species

having  $2n = 28$  chromosomes) has not given as important results as those obtained with soft wheats. Great progress is still to be made in the work of increasing productivity, early maturation, resistance to blast, spotting, lodging and rust.

(b) Soft wheat (*Triticum vulgare* Host).

*Selection.* — Clear proof of the possibility of cultivating soft wheat in Tunis was found in the existence of various forms of this wheat mixed with native cultivations of hard wheat and in their tendency to multiply more rapidly and predominate over hard wheat.

On the other hand the increase in the European population consuming bread made with soft wheat and the limited market for hard wheat constituted economic conditions favourable for the cultivation of soft wheat in Tunis.

In certain regions in Algeria French Tuzelles and Mahon wheat (brought, no doubt, from the Balearic Islands) are cultivated to a certain extent.

The French southern varieties have proved to be too late in ripening for successful cultivation in Tunis.

*Mahon wheat*, after individual selection gave two lines, 73 and 124, serving to initiate the cultivation of soft wheats in the Regency. They are very liable to lodging since the yield exceeds 15 to 18 quintals; they are only a few days earlier than the hard wheats and are thereby liable to black rust.

The first intention was to breed soft wheats mixed with the hard wheats of native cultivation. Among the numerous lines isolated, none were early, a few were very resistant to lodging, the majority had flinty grains. As millers prefer the very farinaceous grains the breeding of these wheats has been abandoned as they were not appreciated either by farmers or millers. This decision has since been regretted as valuable genotypes have probably been lost and new work is now being carried out for these wheats which the natives call "babous el brel" (mules-tail) on account of their awns which are less developed than those of hard wheats.

The two primary qualities to be sought for in the soft wheats being early maturity and resistance to drought, efforts have been directed towards introducing foreign varieties and breeding early lines.

The first to be obtained was *Richelle hative* 110 bred from a variety found mixed with *Allora Spring Wheat* of Australia. It ripens 10 to 12 days before Mahon and its extremely white grain gives a high yield in flour. This line, grown since the year 1912, was very useful during the War helping to tide over the period before the regular harvest. At that time hardly enough soft wheat was grown in Tunis to supply the country's needs.

*Richelle hative* 110. — Has little foliage, is resistant to black rust and has an average resistance to lodging. It has the disadvantages of succeeding only in regions with a low rainfall, of suffering from winter cold and of being poorly resistant to the growth of weeds. It was grown for less than ten years and was replaced in 1920 by *Baroota*, line 52, of Australian origin, a wheat with considerable winter development, choking the growth of weeds, fine grain, slightly glossy, fairly resistant to lodging. *Baroota* was far more extensively grown,

and is still recommended for insufficiently cultivated land. The period of vegetation is about the same as that of Richelle.

The numerous introductions from abroad provided *Florence 138*, a line from *Farrers* Florence hybrid (Australia), and *Irakie 231* from Irak and which later proved closely to resemble *Pusa 4* of India.

These two new acquisitions were very valuable on account of their extreme earliness which advanced the harvest by one month in relation to the hard wheats. For this reason these wheats generally do not suffer from black rust. They are rather subject to yellow rust, but give a good yield even when severely attacked. Almost all soft early wheats are subject to yellow rust and a considerable number of lines from numerous foreign varieties have been eliminated by this rust.

*Florence* and *Irakie*, have flinty grains. Although at first unpopular with the local millers, they were afterwards in demand for their industrial qualities.

The second proved to be of unequal yield according to the districts and years and has not persisted, while the first was very soon extensively cultivated. On account of its extreme earliness it has replaced barley, which ripens at the same period, in the majority of European farms.

*Baroota* and *Florence*, by a suitable distribution of dates of sowings and harvestings, have been important factors in the extension of the cultivation of soft wheat in Tunis. They also, as has been ascertained, constitute two excellent wheats for baking flour, greatly superior to *Mahon* and *Richelle* which they have replaced.

Among the numerous varieties produced in Italy by Professor STRAMPELLI, only one has continued in cultivation in Tunis, namely, *Mentana*, which is very early, productive and not particular as to the fertility of the soil. Present economic conditions which result in preference being given to baking wheats for export limit the extension of *Mentana* owing to its baking value being medium or small.

*Hybridisation.* — The production of new genotypes of soft wheat by hybridisation was undertaken in 1923. In the previous year Professor SCHRIBAUx had supplied 19 hybrids represented by the harvest of the second generation. The separation of genotypes and their comparison has enabled us to retain several lines of the hybrids *Florence* × *Aurore* and *Pusa* × *Florence*, very early and productive, which have proved to be baking wheats comparable to the best Manitoba samples. On account of their qualities these wheats are being substituted for other soft wheats and at the present time are grown over more than half the area devoted to growing soft wheats and provide about 1 million quintals per annum for export. They really constitute a supplementary production to that of France and their propagation has rendered inestimable service to cereal growers in North Africa. These wheats are resistant to lodging, they have made it possible to obtain high yields on land the fertility of which has been greatly increased by sound cultivation methods (35 quintals plots of 100 hectares; more than 40 quintals on 2 hectares), but owing to their liability to rust a damp spring is a source of risk.

Almost the whole of the area cultivated with soft wheats in Tunis is occupied by varieties produced by the Botanical and Agronomical Service.

*Mahon* is gradually disappearing.

*Florence* and *Barletta*, good wheats for baking purposes, satisfy the requirements of local consumption.

*Mentana*, with inferior baking qualities, is only rarely cultivated.

*Florence* × *Aurore* and *Pusa* × *Florence* are baking wheats and provide wheats and flours for export.

Numerous other hybrids are now being tested by the Botanical and Agronomical Service and in the regional trial fields and will gradually replace the varieties now being cultivated as soon as their superiority has been sufficiently established. Work is being concentrated on 5 or 6 varieties, constituting 2 commercial types, a series of soft wheats satisfying various regional and economic requirements.

### (c) Technique of improvement. General Remarks.

The technique applied in the Botanical and Agronomical Service for selection and hybridisation is based on genetics the progress of which has been followed. A detailed description cannot be given within the limits of this article. The Service has attempted to carry out schemes for trying out the greatest possible number of lines and to obtain and maintain purity of these lines with the staff and financial means available.

The trial field of the Botanical and Agronomical Service for cereals contains about 25 000 examples annually, from the immediate descendants of single ears (20 000) to plots of one are.

Multiplication on larger areas is undertaken by the farm of the Service on an area of about 30 hectares and afterwards by farmers specialised in seed production and under the supervision of the Service (See § E).

Whether it is a question of mass selection or of isolating the products of a hybridisation (F<sub>2</sub>) the point of departure is one single ear the grains of which are sown in lines of 1 m. All necessary observations for assuring homogeneity of the descendants are carried out during vegetative growth and also by examination of the grain after harvesting. Lines believed to be homogeneous are sown the following year in 3 rows of 10 m. but 10 separate plants are sown at the same time. This plan is kept up until the purity of the lines assured.

Multiplication afterwards is increased to 7 rows of 10 m, and then to one are, always observing the rule of sowing 10 separate plants each year.

Many lines, apparently pure after 3 or 4 generations, prove to be different types when sown on a large area, and about ten years is required for obtaining a line capable of maintaining its homogeneity when grown over a large area. Thirty years experience has led us to believe that a *truly pure line* (*homozygotic genotype*) is the ideal constantly sought for, but which it is impossible to be sure of ever attaining.

A line is pure in relation to the characters which have served as a basis for selection. How is it possible to affirm its purity in respect of the genes which

condition the changing characters, the physiological phenomena, the chemical composition and the qualities of the gluten, which cannot so far be expressed with precision? The number of genes of wheat is probably very great; allogamy, though exceptional in *Triticum* species, is however not so rare as is supposed. It results that the perfect homozygote state can only be realized in very small proportion of plants selected at random as originators of lines.

In view of these facts we have decided to retain for an indefinite period the whole series of stages of selection for every line approved for large scale cultivation.

We have profited by the crossings carried out with wheats (more than 200) in order to make observations on the heredity of the different characters. A summary description of this work can only be given in this article.

All special material for the rapid carrying out of sowings and threshing operations has been designed and, more often than not, constructed in the workshops of the Service and will be described in another publication

#### (B) — ADAPTATION TO PHYSICO-CHEMICAL ENVIRONMENT.

Obtaining a new variety of wheat which shows advantages over those already in cultivation constitutes merely a possibility of progress; for this progress to become an economic reality it is necessary to propagate this a variety in regions where conditions of environment appear to be suitable for developing its special qualities.

In Tunis climatic conditions vary greatly within relatively short distances. Rapid and thorough improvement of methods of cultivation, on the initiative of first rate farmers, has been effected and has corrected, to a large extent, the disadvantages of an insufficient and irregular rainfall. Repeated cultivation for a period of from 15 to 20 years has increased, sometimes to excess, the supply of water to the soil and the soil content in nitric nitrogen. The frequency of spotting, the gravity of attacks of rust, the development of take all, the danger of lodging and perhaps frost, are the consequences of the evolution of methods of cultivation.

The improvement work on varieties of wheat carried out by the Botanical and Agronomical Service has had to take into account the adaptation of novelties to natural conditions of environment sometimes profoundly modified by the farmer.

(a) *Ecology*. — The first means of studying the adaption of varieties of wheat produced by the Service was the establishment of *regional trial fields*, now about 20 in number, in which are cultivated the lines that appear to be productive, resistant to parasites and weather conditions and to have valuable industrial qualities. They usually remain for 5 years in the regional trial fields during which time they are tested by the Service. These fields are on the land of farmers who thereby become collaborators with the Service. Sowing and threshing is executed by the Service by means of light material transportable by a small camion.

The best methods of ascertaining the value of the varieties thus tested is to organise comparative yield tests. The technique of such tests has been studied for some time, but application on a regional scale has not proved practicable.



Many new varieties are automatically eliminated by their lack of resistance to lodging, blast, rust, take-all. By preserving those which have been successfully tested in the majority of regions and which maintain their superiority when cultivated on a large scale, we have been able to propagate varieties which are grown over an extensive area, their number being accordingly limited to a few strains only.

These «passe-partout» varieties are the most resistant to adverse conditions, which are very variable from one year to another in the same region, and generally give the best average yield calculated over a period of at least 5 years.

The Ecology laboratory of the Botanical and Agrinomical Service has, for several years, been engaged in determining the *physical needs of the varieties of wheat and their ecological reaction* before allowing them to be cultivated on a large scale

Sowings of each variety are made at definite intervals and the growth noted in relation to the climatic factors. A logarithmic curve of growth is established for each sowing. Comparison of the curves for each period of development of the various sowings shows the optimum conditions of growth for each of these periods and thus facilitates the plotting of curves (ecological norms) of the requirements relative to the climatic factors considered in pairs. At present we are engaged solely in studying rainfall associated with temperature (hydro-thermic norm) and evaporation associated with temperature (atmo-thermic norm.)

The study of the observations made by the Meteorological Service of Tunis, whose stations are distributed all over the country, has enabled us to establish the hydro-thermic curve (climogramme), during the growth of wheat, for a great number of localities.

Atmo-thermic climogrammes may be established when the use of atmometres, already employed in a certain number of our regional fields, has become general.

It is sufficient to superimpose the ecological norms of a variety on the corresponding climogrammes of a station to ascertain the possibilities of adaptation of the variety to the station and the dangers to which the variety may be exposed on account of a too great divergence between the requirements of the plant and the average climatic conditions of the station. The percentage of favourable years correspond to the years in which these divergences are not so wide as to seriously affect the vegetation of the plant.

The comparison of these theoretical results with the success or failure of certain varieties in determined regions has aroused hopes that this ecological method will facilitate the study of adaptation of lines of wheat to climatic factors.

Agricultural Ecology has become an indispensable complement to genetics. The old local varieties were the result of a veritable natural selection. At the present time the introduction of foreign varieties, and the production of hybrids necessitates the study of the adaptation of the new forms to the various conditions of environment and, failing an methodical experimentation, farmers would be obliged to run the risks incurred by empirical acclimatisation of the varieties put at their disposal.

Among meteorological disasters, freezing of the ears in spring is most greatly feared for the very early varieties of soft wheat. A study of the damage caused by this freezing and the conditions under which it occurs has been made and published.

(b) *Agronomy*. — As to the *requirements of varieties of wheat in chemical elements*, it does not appear, *a priori*, that they vary very greatly from one variety to another. Practical cultivation has, however, shown that baking wheats, if early ripening, require well prepared soil and do not succeed as a second cereal crop. Precocity is not the sole reason, as *Mentana*, also early, is less exacting and gives a satisfactory harvest even when following another cereal. *Florence*, also very early, is intermediate in its requirements.

The Chemical and Agrolological laboratory of the Service has made a beginning only of the study of the chemical needs of the various varieties grown as crops. It has, however, contributed greatly to the use of nitrogen fertilizers in the cultivation of cereals in North Africa.

This laboratory is engaged in the *general study of the agricultural soils of Tunis* a subject closely related to cereal production which is the principal form of cultivation.

The results of a *pedological and agricultural enquiry* made three years ago in collaboration with Professor AGAFONOFF will be published during the course of this year (Vol. XII. of the *Annales du Service Botanique and Agronomique*).

The determination of the *factors limiting the fertility* of each type of soil is carried out, region by region, by means of cultivation in pots kept on small transporters. A wheat crop and a summer crop are employed for determining the chemical elements which should be added to the soil in order to increase its fertility.

In the next farming season, the Service will have 15 moveable platforms carrying 450 pots.

Finally, the profound modifications made in the fertility of wheat land by methods of cultivation (following, preparation of the soil etc) necessitates the study of the correct application of *elements of fertility* (organic and mineral substances) under the influence of crop rotation, cultural methods, manures, circulation of water.

A series of 32 vegetation cases of 8 cubic metres ( $2\text{ m} \times 2\text{ m} \times 2\text{ m}$ ) each were constructed three years ago, half of them being fitted with impermeable bottoms in order to collect the water of infiltration. They are now producing their second harvest and the results of this installation will provide an excellent means of establishing the optimum conditions for cultivating the soil, the use of manures and crop rotation, starting from wheat as first crop.

### C. — PESTS OF WHEAT.

The destruction of weeds, either by crop rotation and appropriate methods of cultivation or by selective chemical weed-killers for wheat crops, has been studied by the Professor of Botany of the Colonial School of Agriculture of Tunis, attached to the Agronomical Botanical and Service. The object of this study

is to bring up to date the use of sulphuric acid solutions in North Africa, and the abolition of the use of sodium chlorate which is not sufficiently reliable. At the present time studies are being made on phenol derivatives, at least as active and selective as sulphuric acid and more easily handled.

The only phanerogamous parasite causing damage to wheat crops, *Thesium humile*, has been studied by the same experimenter. He has shown that this parasite, which is very common, requires space for its development which it only finds in scanty crops growing in poor soil and that it disappears in dense crops and is destroyed by chemical treatment applied to weeds.

The Plant Pathology laboratory of the Botanical and Agronomical Service is chiefly occupied with cryptogamic diseases of wheat.

Preventive treatment against the Ustilaginales, by dusting the seeds, has been tried with numerous substances. At present smuts in wheat (*Tilletia tritici* and *T. laevis*) are effectively controlled by powders with a cuprous chloride and cupric chloride basis. Various firms for chemical products supply the powders manufactured according to information given by the Botanical and Agronomical Service. Some of these treatments have proved efficacious for external smut of cereals, others are at present being tested.

The laboratory is now engaged in research work on polyvalent powders to be applied for Ustilaginales and Take-all.

It has also studied, for several years, the treatment of wheat rusts and, parallel with the work undertaken in America, has demonstrated the efficacy of finely pulverised sulphur and para-formaldehyde. This work is still incomplete and it would be premature to advise the application of these treatments to crops.

The determination of the physiological species of rust and the susceptibility of our wheats to them is still being studied and will perhaps result in the establishment of certain treatments or resistant lines of wheat.

A certain number of animals sometimes cause great damage to wheat crops: larvae of Cock chafers, eel-worms, Hessian fly, Corn weevils, Bugs, etc; or in the granaries: Angoumois Grain Moth, Corn Moth, Weevils, etc.

These pests and means for their control are studied by the *Entomological laboratory of the Colonial School of Agriculture*.

Vol. XI of the *Annales du Service Botanique et Agronomique*, now in course of publication, is devoted to "Enemies of Wheat in Tunis".

#### D. — INDUSTRIAL VALUE OF WHEATS.

Up to 1920, Tunis was not a wheat exporting country. The harvests (quinquennial average) were hardly sufficient for internal requirements. A few hundred thousand quintals of wheat were exported, chiefly to France just before the new harvest from the carry-over of the last and flour and alimentary pastes were reimported from France and Algeria.

The great efforts made in colonisation in the following 10 years, the clearing of large areas of land as a result of the high price of wheat, the increase in yields

following the great progress in soil preparation due to the general adoption of motor cultivation, were the principal reasons for the rapid increase in wheat production in Tunis. The country now is able to export an average of 1 million quintals of hard wheat and the same amount of soft wheat. On the advice of the Botanical and Agronomical Service, colonists have concentrated chiefly on producing soft wheats which command wider markets than hard wheats.

One of the principal objectives of the Service was to find baking wheats, avoiding any competition with wheats grown in France, as France buys annually about 10 million quintals of baking wheats from abroad.

The introduction of Canadian baking wheats of the Manitoba type was unsuccessful, as these spring wheats, very early in Canada, became late wheats when sown in autumn in Tunis. This is explained by the effect of the short winter days on the vegetative growth of a wheat normally grown in the long days.

The National Wheat Week, held in Paris in January, 1923, the trials in bread-making with French wheats and North African wheats showed that the latter were as lacking in strength as the French wheats and could not be used for purposes of improvement.

The negative results obtained with baking wheats from the most northern regions has led us to have recourse to wheats from regions nearer the Equator than Tunis.

*Baroota 52* and *Florence 135*, Australian varieties, provide baking flours greatly superior to *Mahon* and *Richelle*, but they are not yet baking wheats.

The baking value or «strength» of wheats was not easily measured until the CHOPIN extensimeter permitted the expression of the mechanical qualities of pastes in figures.

Our technological laboratory for wheats, established 5 years ago, was able to obtain an extensimeter before they came on the market thanks to the kindness of the «Grand moulins de Paris».

With this apparatus we were able to ascertain that Irakie wheat and several recent hybrids showed the characteristics of baking wheats and equalled the Manitoba type.

*Irakie* was abandoned as the flour is grey and the yield is irregular. *Florence* × *Aurore*, line 588, though not completely tested, was multiplied by a Tunisian farmer M. CAILLOUX, in one of our regional trial fields because of its great productivity, precocity and resistance to lodging. He obtained 7 000 quintals of this wheat in 1930 of which 3 000 quintals were sold for seed and this wheat now constitutes the greater part of the soft wheat sowings.

Pedigree selection, by the Botanical and Agronomical Service and by M. CAILLOUX, will in the near future provide Tunis with pure lines of this wheat undoubtedly superior to the wheats obtained by ordinary multiplication under No. 588.

Lines of *Pusa* × *Florence* are of equal purity and strength with that of *Florence* × *Aurore*, and have been cultivated on a large scale for several years and to a nearly equal extent. All these wheats have a W average of 250.

In 1934, the trial field of the Botanical and Agronomical Service harvested:

18	lines at W between 250 and 300
16	» W » 300 and 350
8	» W » 350 and 400
1	» W » 400 and 450
2	» W exceeding 450 (a single curve reached 573). *

The situation of the estate of the Service, near the sea, is not very propitious for obtaining high W. The figures given above, therefore, do not express the maximum value of W that may be attained.

It appears that it is not difficult to obtain, in North Africa, very good baking wheats. There is nothing, however, to prove that the lines most remarkable for W are the most valuable, both from the industrial view point and the cultivation value. The results obtained in the regional trial fields and the tests in bread-making will decide, in the near future, the lines that should replace *Florence* × *Aurore* and *Pusa* × *Florence*.

The work of the Technological Laboratory of the Botanical and Agronomical Service also carries out research work and analysis for the public.

(1) *Research*. — Each year there are submitted to the CHOPIN extensimeter:—

The varieties cultivated in the trial fields of the Service, as a guide to selection.

The harvest from the regional trial fields, so as to study the influence of conditions of environment on qualities of wheat.

The harvests resulting from manuring tests and various crop rotations applied in the open fields and in the vegetation cases.

The influence on qualities of wheat of blast, spotting, rust, wetting by rain, insects pests (Bugs), methods of conserving the grain in sacks, in bulk and in silos, the processes of insecticide treatment of the grain in warehouses, has been the object of numerous analyses by the extensimeter.

The improvement of the extensimetric technique and the introduction of new methods (flour-graph and ferment-graph of BRABENDER) have also been studied in 1934-1935.

These investigations represent about a thousand analyses per annum.

To this must be added the experiments in bread-making with varieties before being grown on a large scale; numerous measurements of gluten, of ash, of degrees of pH, etc.

At this time this laboratory is studying the rapid and most accurate methods of estimating the industrial value of wheats, so as allow thier grading in silos and to prepare the standardisation of baking wheats.

The Technological Laboratory is being enlarged and will shortly equipped for studying the semolina value of hard wheats and their possible use for producing pastes.

(2) *Analyses for the public.* — The local trade and export of baking wheats and flours are obliged to be in a position to offer to the buyer a guarantee of the value of wheats offered for sale. The Technological Laboratory has given this guarantee by means of analysis of wheats with the extensimeter since 1933. For the season of 1 June 1934- to 30 May 1935, about 2 400 such analyses have been made on behalf of farmers, traders and millers.

It is not possible here to give a summary of the work of the Technological Laboratory for wheat; descriptions have been made the subject of a number of lectures given to farmers in Tunisia. An account of the work will be given in Vol. XII of the *Annales du Service Botanique et Agronomique*, to be published in 1936.

As a general conclusion may be mentioned the necessity of carrying out a careful grading of separate harvests in the co-operative silos, and of establishing homogeneity in the lots so to arrive at *standards* which will present the maximum guarantees for purchasers.

The study of the means of putting into practice this last phase of the organisation of production and sale of wheats is at present being carried out jointly by the growers and the Botanical and Agronomical Service.

#### E. — PRESERVATION AND TESTING OF PURITY OF SEEDS.

The full value of the production, by a genetic establishment of varieties of improved plants does not accrue unless the farmers can easily obtain the quantities of *pure seed* that they require.

The Botanical and Agronomical Service sows each year, on its own estate, about 30 hectares of cereals and supplies pure seed to farmers. This would be very inadequate to meet the requirements of the country as, owing to the causes bringing about accidental mixture on a farm, it is hardly practicable to maintain sufficient purity for more than 5 years. It is therefore necessary that seed should be produced by specially qualified farmers who are under supervision and who maintain the purity of the seed.

In Tunis the problem has been easily solved for the last 15 years.

A register of *pedigree varieties of wheat* is kept by the Botanical and Agronomical Service in which all the varieties entered have, up to the present, been produced by the Service.

The production of pedigree seeds (such as defined by the administrative decrees) is compulsorily under the inspection of the Botany and Agronomy Service. This inspection is carried out on the harvest before gathering and is completed by the analysis of seeds for sale (cleanliness, germinal power). A certificate of *garantées* is issued.

\* The characteristics required are:

*Botanical purity*            99 % of the variety mentioned.

*Cleanliness:* less than 0.5 % of grains other than wheat.

      "      "      0.5 % of foreign bodies.

      "      "      4 % of broken grains.

                 Absence of spotted grains.

*Germinal power:* 90 %.

Inspection is effected only in the case of the crops from the *original seed* or that of the *first generation* of the original seed.

The original seeds are produced on  $1 \frac{1}{12}$  of the area devoted to the production of seed under such inspection. On land where wheat has not been grown the previous year, the seed is sown in strips 2 m. wide and separated by paths at least 30 cm. wide; the land should be thoroughly weeded, a list of weeds being issued by the Botanical and Agronomical Service, and should show, at the time the inspection on the spot is made, a minimum botanical purity of 999 per 1000. The seeds obtained serve, on the estate, for producing seeds of the first generation the following year. They may also be sold to farmers if they fulfil the required conditions with regard to cleanliness and germinal power.

The producers of original pedigree seeds receive a bonus for each quintal of wheat of the first generation sold and used for sowing. This bonus is intended to cover a part of the expenses of testing original seeds for purity, it being rightly considered in the general interest to maintain their purity.

The administrative provisions regulate the conditions of packing and sale of pedigree seed so as to protect producers against fraud.

Each year, 12 to 15 farmers devote several thousand hectares to the supervised production of original seeds and seeds of the first generation. The latter often show a purity approaching 999 per 1000 and the total cultivation of soft wheat in Tunis shows a remarkable purity and has contributed to the reputation of this production.

Progress is far less complete for hard wheats produced by small native farmers. The old mixtures are still cultivated and this production, of large quantities by old-fashioned routine methods, depreciates the value of Tunisian hard wheats. A continuous administrative policy carried out through the Tunisian Provident Societies, which make large advance in kind of seed, is necessary in order to change this state of affairs.

#### F. — PRACTICAL RESULTS AND CONCLUSIONS.

In Tunis, the improvement of wheats and the control of seed production is entirely dependent on a State organisation, the Botanical and Agronomical Service, which also is at the disposal of the public for analyses of wheats for sale.

By selection and hybridization, this Service has succeeded in producing varieties corresponding to the requirements of farmers and industrialists and in establishing the cultivation of soft wheats which has now become more certain than that of hard wheats.

The adaptation to conditions of environment, the improvement of methods of cultivation by farmers, carried out parallel with the improvement of varieties, has resulted in a very large increase in yield per hectare (exceeding 20 to 35 quintals).

The hard wheats and soft baking wheats constitute, for export purposes, two supplementary products to those of France.

The practical establishment of uniformity and the standardisation of baking wheats is being studied.

It now remains to benefit the small native farms by these improvements.

It must be mentioned, in justice, that the striking and rapid progress has been due to the close collaboration between the Botany and Agronomy Service and the farmers. The latter, both individually and through their special organisations, the Farmers Society the Central Co-operative Society and the Office of Agricultural Experiment, have rendered valuable service to the Botanical and Agronomical Service of the Direction of Agriculture, which is proof of their progressive spirit.

## II. — BARLEY.

The cultivation of barley is of little importance in the European farms where it has been replaced by early soft wheats. It is one of the principal elements of native cultivation as this cereal is less particular than wheat as to fertility of the soil and rainfall.

The selection of barley was initiated at the same time as that of wheat (1906).

The large amount of the Winter Barleys exported from Tunis were utilised in Northern France, England and Belgium for preparing beers at high fermentation.

The problem was how to meet the requirements of the Malting and Brewing industries by producing pure lines of winter barley and by attempting the acclimatization of two rowed barley used in the manufacture of beers at low fermentation.

The selection of native barley started with the multiplication of a line of winter barley (14 j.) that has been most in demand by importers.

The selection of two rowed barley, imported from various European countries and from California, etc., showed the difficulty of obtaining lines with both a cultural value and satisfactory industrial qualities. The majority of lines were either too late, subject to smut, or the grains were too small. It became necessary to introduce barleys from more southern countries, and above all to carry out crossings in order to associate the indispensable cultural and industrial qualities.

The period of hostilities interrupted the work after which the colonists gave priority to wheat over barley.

The present difficulties of the wheat market, together with the facilities for marketing brewing barleys in France, have the result that the production of these barleys, has been taken up again by farmers in the Centre and South of Tunis, regions where barley growing is less exposed to chance than that of wheat.

The renewal of the work of improvement of barleys is included in the programme of the Botanical and Agronomical Service for the coming year. A lecture was given to farmers in the Centre last May for the purpose of explaining the attention they should give to their crops and the sale of winter barleys so as to meet the requirements of the Malting industry.



### III. — OATS.

-Oats are a secondary cereal in plant production in Tunis. After having been cultivated over about 60 000 hectares, almost entirely European farms, this cultivation has been reduced to 20 000 hectares, more than half of which is native farms. The reasons for the abandonment of this cultivation by colonists are the same as already shown for barley.

In Tunis only varieties of *Avena algeriensis* are grown. All the varieties of *Avena sativa* imported from Europe and other parts of the world have too much foliage and are generally too late to escape the spring drought. Many dry up without earing.

*Avena algeriensis* was introduced from Algeria. The colour of the grain varies from red to creamy white, red being by far the most common.

The grain is thin, too long, with straw-like husks, and falls easily when ripe. The second grain of the spikelets is born on a stiff stalk, is pointed and liable to injure the mucous membranes of the digestive organs.

Pedigree selection has given us a line less subject to shedding, with creamy white grains the husks of which are finer. This variety is extensively grown by European farmers.

The study of the descendants of numerous hybrids between *Avena algeriensis* and *Avena sterilis*, which are closely akin, has permitted the separation of white, yellow, cream, grey and black lines, all these colours being found in the wild forms of *Avena sterilis*. Unfortunately the testing of lines has not been carried far enough to prevent the reappearance of *Sterilis* types, which are wild plants causing great annoyance to farmers. Work on this subject has been suspended.

Australia having bred a great number of varieties of *Avena algeriensis* remarkable for the beauty of the grain (red or creamy white), early ripening and productivity, we have introduced these varieties which have been tested for the last two years in the regional trial fields. A slight increase in the cultivation of oats in the European farms will justify, if it continues, the propagation of new varieties corresponding more closely to the requirements of importers.

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- La valeur industrielle des Blés Tunisiens*, par M. MATWEEFF, Vol. XIII des *Ann. Serv. Bot. et Agr.*, à paraître en 1936.

## OLIVE GROWING IN VARIOUS COUNTRIES:

### 5) PORTUGAL AND FRANCE \*.

#### I. — PORTUGAL.

Portugal, both for the area cultivated in olives and the production of oil, is the fourth olive growing country in the world, only preceded by Spain, Italy and Greece.

The olive grows for preference in calcareous soils, also clay and sand provided it is not too humid. It is found both at sea level or almost sea level, round the coasts, and also at high altitudes. In the south it grows in the vast and arid plains of Alentejo and Extremadura: in the north, on the table-lands and mountain slopes. In the south the olive is generally cultivated in association with the vine,

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(\*) The preceeding articles of this series have appeared in this *Bulletin*, 1934 No. 12 (1. — Spain) — B., 1935, No. 1 (2. — Italy) — B., 1935, No. 3 (3. — Greece and Turkey) — B., 1935, No. 4 (4. — Tunis, Algeria and Morocco French Zone).

TABLE I. — *Present state of olive growing in Portugal.*

Provinces	Administrative districts	Area cultivated		Number of trees		Average yield (in quintals)		Yield of olives in oil %	Number of oil mills
		Number of hectares in full yield	Number of hectares planted with young trees or trees giving a small yield	in full yield	young or giving a small yield	Olives	Oil		
Entre-Minho et Douro . . . . .	Viana-do-Castelo	3 122	2 351	187 330	141 100	32 313	3 141	9.7	150
	Braga . . . . .	6 319	3 110	505 570	248 870	52 533	10 111	19.2	324
	Porto . . . . .	7 347	4 002	440 820	240 100	16 502	2 583	15.6	269
Trás-os-Montes . .	Vila-Real . . . . .	7 269	3 840	723 950	383 990	125 488	17 112	13.6	486
	Bragança . . . . .	12 136	7 049	1 213 070	703 940	227 142	37 857	16.6	540
Beira . . . . .	Aveiro . . . . .	3 015	1 986	241 200	158 920	38 605	5 150	13.4	84
	Coimbra . . . . .	24 505	12 828	1 905 200	1 026 300	233 552	31 848	13.0	530
	Viseu . . . . .	16 014	8 218	1 281 120	657 440	189 761	25 876	13.7	589
	Guarda . . . . .	13 400	7 480	807 630	448 810	170 916	29 557	16.4	350
	Castelo-Branco . .	29 467	10 780	2 946 770	1 678 040	637 500	92 120	14.4	830
Estremadura . . .	Leiria . . . . .	31 221	15 977	2 497 730	1 278 230	214 874	33 927	15.8	310
	Santarém . . . . .	63 633	33 781	5 090 670	2 702 500	848 139	115 955	13.7	1 434
	Lisboa . . . . .	9 500	3 362	950 060	336 260	72 208	12 034	16.9	218
	Setúbal . . . . .	5 120	1 790	512 050	179 090	78 124	12 207	15.6	94
Alentejo . . . . .	Portalegre . . . .	28 970	10 028	2 807 100	1 002 800	304 123	60 687	16.7	270
	Évora . . . . .	27 618	7 315	2 761 870	731 540	559 860	51 507	9.2	211
	Beja . . . . .	24 472	10 337	1 957 700	826 990	284 380	40 719	16.5	279
Algarve . . . . .	Faro . . . . .	7 804	3 833	408 240	230 000	83 736	13 956	16.7	223
Totals . . . . .		321 052	160 067	7 448 740	13 574 980	4 238 816	602 047	14.4	7 191

cereals and carob beans and in this case the olive benefits from the cultivation given to these intercalary crops. In the north it is found mixed with chestnuts and almonds. In the Minho region the vine is the principal form of cultivation and the olive takes a secondary place. The largest groves where the olive is grown alone are in the regions of Beira, Extremadura and Alemtejo.

According to information obtained from an enquiry carried out by the Division of Agricultural Statistics — transmitted by the Division for Agricultural Information and Propaganda of the Ministry of Agriculture and from a report presented to the XI International Congress of Olive Growers (Lisbon, November, 1933) by J. DE SILVA FIALHO, Table I has been compiled which shows the present state of olive growing and the relative industries.

Comparing the area cultivated with olives with the total agricultural area in Portugal, 5 325 000 hectares, it will be seen that the olive occupies 9.03 % of this area. Although the practice of associating the olive with other forms of cultivation is fairly general, the area actually occupied by olives alone is not more than 400 000 hectares. During the last 30 years the olive-growing area has increased by 151 965 hectares and 20 % of the oil production is to be found in the district of Santarem. The Beira region produces the finest oils.

The olive growing capital represents (calculating the 40 million olive trees at 50 escudos per tree) two thousand million *escudos*. The annual average value of olive production is estimated at 350 million *escudos*, only exceeded by the value of vine, wheat and maize production.

In 1902, Manuel DE SOUSA DA CAMARA published a fairly complete work (*Subsidio para o estudo das variedades de oliveira portuguesa*) in which are described and classified the majority of varieties of olives cultivated in Portugal at that time. The material contained in this study is very valuable, the description of the trees being completed by a methodical classification of the fruit, which permits the olives to be identified when separated from the trees.

In 1925, Professor J. RASTEIRO, in collaboration with the agronomy expert P. SILVEIRA da CUNHA and, later, in 1927, with the agronomy expert A. DE LANCASTRE ARAUJO, studied and classified, at the Higher Institute of Agronomy, a great number of specimens of olives from the various olive growing regions in Portugal.

A. DE LANCASTRE ARAUJO, (\*) in an important and well documented study presented to the XI International Congress of Olive Growers (I), describes and classifies five varieties of olives in the most complete manner, among which *Galega* (*O. atro-virenta*, *O. oblonga*) is of great economic importance for Portugal.

The number of varieties cultivated is considerable, the most important being: *Galega* which is grown in all parts of the country and particularly in Santarem; *Lentisca* which is of medium size and produces a fairly good oil; it is found chiefly in Leiria and Santarem; *Carrasquenha* or *Carrasca*, very early, small, the fruit, however, gives a good yield in oil, grown in the districts of Baja, Braganca, Castelo-

(\*) A. DE LANCASTRE ARAUJO, Essai sur la caracterisation des variétés de l'olivier. Étude biometrique. — *Actes du XI<sup>ème</sup> Congrès International d'Oliviculture*, Lisbon 1933, p. 83-146, 12 diagrams, 5 fig.

Branco, Evora and Portalegre; *Bical* or *Bicuda*, a very late variety, in soils favourable to its growth it reaches a great size and is, among late varieties, the one that gives the highest yield in oil, the fruit is also considered admirable for table consumption, it is cultivated in Castelo-Branco, Braganca, Guarda, Evora, Portalegre, Santarem and Viseu; *Cordovil*, fairly early, gives a small yield in oil, but of very good quality; *Verdeal* and *Mancanilha*, yields a fine oil and fruit which is excellent for table consumption, it is principally grown in Beja, Evora and Faro.

The districts of Castelo-Branco, Santarem, Evora and Beja are those in which the olive is cultivated with most care. The Schools of Agriculture and Agricultural Posts, principally those of Tavira and Miranda and the farms of Santarem and Coimbra, possess olive groves where experimental work is carried out on the most up-to-date methods of cultivation and the results are popularised among olive growers by means of pamphlets, articles, lectures, etc.

By Decree No. 20526, in 1932, the Olive growing Station of Castelo-Branco was established for the following purposes— (1) The classification and study of varieties of olives cultivated in Portugal, also the oils; (2) Improvement of methods of olive growing, from the technical and cultural view points, by organising practical courses in olive growing and oil extraction; (3) Study of the various processes of oil extraction in order to obtain the maximum yield, to improve the quality of the oil, also to study the classification and refining of oils; (4) Study of the problem of conservation of oils and everything relating to their new industrial uses.

The Association of Olive-growers of Portugal, which groups the majority of producers, was established on 21 May, 1929. This Association is affiliated to the Central Association of Portuguese Agriculturalists with headquarters at Lisbon, Largo do Chiado, 8. A monthly "*Buletim da Associação central da Agricultura Portuguesa*" is published in which the various problems and aspects of olive growing are treated.

The Olive-growers Association organises competitions in cultivation, pruning, budding, mechanical gathering of the olives and extraction and conservation of the oil. A national Co-operative Society has been established, for producers and exporters, in order to supervise exportation of fine oils and to guarantee their purity, it advises the Government on all questions relating to this important branch of agricultural and industrial production, it has also organised a service for analytical work. Consignments expedited by the members of this Society are marked or sealed so as to guarantee the genuineness of the product.

The Decrees No. 17774 of 18 December, 1929, No. 18650 of 21 July 1930, and No. 20041 of 8 July, 1931, prescribed various provisions for extraction, marks and trade in olive oils. The following is a summary of the most important regulations.

It is not permitted to manufacture, expedite, sell or offer for sale under the denomination of natural oil, a product which is not pure or natural olive oil. Will be considered refined oils all those which have been subjected to any treatment intended for reducing or altering the acidity, odour and colour or to correct the flavour by means of various methods of washing and filtering. Olive oils intended for food purposes may not, in any circumstances, contain

more than 4 degrees of acidity (1) calculated in oleic acid and should have been carefully filtered or naturally purified in such a manner that they do not contain any impurities in suspension. When the oil contains more than 4 degrees of acidity, or more than 2 % impurities, it cannot be kept in shops for sale to the public unless visibly marked "oil for industrial purposes". Residue oil, extracted by solvents, may only be expedited, sold or offered for sale as "residue oil for industrial purposes". Will only be considered as edible oil, the product of the olive which will be expedited, sold or offered for sale as "olive oil". It is forbidden to mix olive oil with other classes of oil for alimentary uses. May only be exported as *olive oils* the products of the olive and consignments should be marked on the outside with the quality, the respective trade marks and the place of origin. It is not premitted to import or export without previously sending a sample to be analysed at the official laboratories, to ascertain whether the product contains any admixture of other oils. It is absolutely forbidden to extract olive oils and seed oils at the same factory. The oil mills and warehouses like all other technico-agricultural enterprises are under the supervision of the Ministry of Agriculture.

The Decree of 8 August, 1930, regulates the circulation, identification, importation and sale of olive oil for food consumption and also prohibits the importation of olive oil with an iodine index above 85 %. All these Decrees contain various penalties for contravening the regulations.

Imports of olive oil, which varied between a minimum of 1642 quintals in 1928 and a maximum of 120 249 quintals in 1930, are very irregular being dependent on the size of the olive crop in the country. The average annual imports, however, amount to 30 000 quibals, 90 % being from Spain. The annual imports of animal and vegetable fats are 60 % of the imports of olive oil (18 000 quintals) and are chiefly re-exported to England, Germany, Denmark and the Netherlands.

The Brazilian market absorbs almost the entire exportation of olive oil and about 50 % of the export of olives for table consumption. The remainder is absorbed by the Portugese colonies. Exports of residue oils are small. Portugal exports annually an average of 25 000 quintals of olive oil.

The production of olives for table consumption amounts to 50 000 quintals per annum of which 18 000 quintals are exported.

Internal consumption is estimated at 10 litres per capita, per annum, being a total of 600 000 quintals. In addition, according to the Portugese Consorcio of tinned sardines, this industry, whose production amounts to two million tins per annum, absorbs 6 million kg of oil, 50 % of which, or 3 million kg, is olive oil and the remainder peanut oil.

The prices of olive oil have not fallen in Portugal to the extent they have in the majority of other producing countries. Good quality oil is at present quoted at 550 to 650 *escudos* per quintal. The highest quotations were in 1927 and 1929 with an average of 850 *escudos* per quintal.

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(1) In certain season, however, the Government authorises the sale of oils (ordinary type) having up to 5 degrees of acidity.



In the future, olive production, owing to the large number of new plantations, will become one of the chief sources of national wealth. This cultivation and the relative industries have a considerable influence on the economy of the country. It is enough to mention that the operations of pruning the trees, collecting the olives and extracting the oil represent a sum of 60 millions of *escudos* per annum, or one *escudo* per litre of olive oil produced, distributed among a working population whose interests are closely linked with those of olive production. For this reason, the present policy tends to encourage and direct the various activities relative to olive growing which has become of great importance to the economy of the country.

## II. — FRANCE.

In the middle of the last century olive growing acquired a certain importance in the south of France where it was cultivated in the valleys and up to altitudes of 800 metres (Department of the Maritime Alps) on terraces in rather poor soils, or soils unsuitable for other forms of cultivation. Since that time there has been a decided progressive decline in this cultivation due to a number of causes.

The following Table shows, by Departments, the number of hectares of olive groves, owners and oil mills which now exist and the present average production of olives and olive oil.

TABLE II. — *Present stato of olive growing in France.*

Departements	Area occupied by olive trees (hectares-)	Total number of olive-trees	Average yield (in quintals)		Number of olive- growers or owners	Number of oil mills
			Olives	Oil		
Basses-Alpes . . . . .	2 660	400 000	18 000	4 125	5 500	11
Alpes Maritimes . . . .	6 000	900 000	26 300	4 200	9 000	28
Ardèche . . . . .	2 300	350 000	15 600	2 450	6 000	12
Aude . . . . .	300	50 000	1 840	350	1 500	2
Bouches-du-Rhône . . .	16 000	2 400 000	53 000	9 200	15 000	83
Corse . . . . .	12 000	1 800 000	30 000	6 750	4 000	58
Drôme . . . . .	4 000	600 000	24 500	5 100	4 300	21
Gard . . . . .	20 000	3 000 000	89 300	14 500	23 000	96
Hérault . . . . .	3 200	480 000	25 800	6 000	13 000	17
Pyrénées-Orientales . .	940	140 000	9 450	1 820	2 300	6
Var . . . . .	23 300	3 500 000	112 600	18 500	22 000	113
Vaucluse . . . . .	10 000	1 500 000	31 400	4 800	21 000	56
<i>Total . . . . .</i>	<i>100 700</i>	<i>15 120 000</i>	<i>443 790</i>	<i>76 795</i>	<i>126 000</i>	<i>503</i>

It may be seen from this Table that the yield in olives and olive oil per cultivated hectare is very small due to the fact that the greater part of the olive groves consist of old trees, badly cultivated and frequently attacked by

diseases and pests. During the last 50 years the area devoted to olive growing in France has been reduced by more than half, olives having been replaced principally by vines. At the present time olive growing, which is generally of a family character (less than one hectare per owner), has been confined to very poor land, unsuitable for other cultivations, and the products cannot compete with the oil seed production in the French colonies in Africa and the olive production in Tunis.

Of the 100 000 hectares occupied by olives trees, it may be said that a quarter are completely abandoned, half is cultivated to a certain extent, being ploughed in winter and the trees pruned bi-annually, the last quarter is scientifically cultivated and is ploughed twice a year (deeply ploughed in winter and lightly ploughed in summer) and is treated with from 12 to 15 thousand kg of manure or chemical fertilisers every three years and the trees are pruned bi-annually.

The Departments in which olive growing has declined most during the last 30 years are the Alpes Maritimes, Gard, Bouches-du-Rhône, Var and Hérault.

The French Government has tried to encourage olive growing on various occasions. From 1910 to 1920 a bonus of 14 to 18 francs was given per annum for every hectare cultivated with olives, but was not sufficient to have any effect on olive production. Between 1920 and 1925, various regulations were made for preventing ruthless cutting and pruning of olive trees. In 1932, by the Law of 7 April published in the *Journal Officiel* No. 85, and annual credit of 15 million francs, as from 1932, was granted for the purpose of encouraging olive growing on the following bases (1) A bonus was granted per tree per annum to all owners or tenants cultivating their olives in a scientific manner; (2) The bonus was doubled per tree, during 10 years, for all owners reconstructing an olive grove by lopping or cutting the trees down to the level of the soil, (3) a triple bonus was awarded per newly planted olive tree during 15 years to all owners establishing a grove containing not less than 25 trees normally spaced. The percentage of these bonuses, which could not be cumulative, was fixed annually by a Decree sanctioned by the Ministries of Agriculture and Finance, taking into account the results of the work done and previously deducting the costs of administration, supervision and control within the limits of 2 % of the credit granted. This Decree, which satisfied the requirements of the producers, provided for various penalties for persons attempting to defraud the State by making false declarations in order obtain bonuses. The olive growing Service has the duty of supervising the declarations and assuring the application of this Law in 1600 olive growing municipalities in France. The Decrees of 12 April and 23 June, 1933, published in the *Journal Officiel* No. 90 and 148 respectively, specified the methods of according the bonuses for olive growing provided for in the previous Decree

The varieties cultivated are estimated at about 100, few of which are of any economic importance in their present state. The principal varieties are as follows.

TABLE III. — *Principal varieties of olive trees cultivated in France.*

Common name	Scientific name	Maturity	Principal use	Departements in which olives are most extensively grown
Verdâtre ....	<i>O. europaea viridula.</i>	Early	Fruits and oil	Vaucluse, Bouches-du-Rhône, Basses-Alpes, Hérault.
Olivière ....	<i>O. e. laurifolia</i> ....	Late	Oil .....	Gard, Hérault, Aude.
Lucques ....	<i>O. e. ceratocarpa</i> ....	Early	Fruits .....	Pyrénées-Orientales, Hérault
Rouget .....	<i>O. e. rubicans</i> .....	Late	Oil and fruits	Région du Languedoc.
Pigale .....	<i>O. e. pignola</i> .....	Late	Oil and fruits	Région du Languedoc.
Saillerne.....	<i>O. e. atro-rubens</i> ...	Medium	Oil .....	Provence et Languedoc.
Amellau ....	<i>O. e. amygdalina</i> ..	Early	Fruits .....	Hérault, Gard.
Corniale ....	<i>O. e. rostrata</i> ....	Medium	Oil .....	Languedoc et Provence.
Picholine....	<i>O. e. ovalis</i> .....	Medium	Fruits and oil	Bouches-du-Rhône, Ardèche, Gard.
Caillat .....	<i>O. e. corniola</i> .....	Medium	Oil .....	Alpes-Maritimes.

Among all the works of cultivation the collection of the fruit, gathered almost everywhere by hand, is the most onerous as, according to J. BONNET, this operation increases the price of the oil by 2 to 4 francs per litre.

The oil production Station of Montpellier, which has replaced the Station at Antibes, now closed down, is equipped with complete and modern material including a laboratory in which are carried out all kinds of studies and investigations on olive oil production.

Attached to this Station is an experimental olive grove, with 600 trees belonging to 120 varieties cultivated in the countries on the shores of the Mediterranean, for the purpose of acclimatization and comparative study of these varieties. A nursery has also been established for obtaining olive plants for distribution free of charge to olive growers throughout the country.

There are other centres for investigations on olive growing, chiefly in Mouriés (Bouches-du-Rhône), Cabris (Alpes Maritimes) and Lorgues (Var) where trials are carried out in manuring, pruning, mechanical collection of the fruit and the control of diseases and pests of the olive. The results obtained are circularised among olive growers by means of pamphlets, lectures and articles published in the « agricultural pages » of the daily news-papers and periodicals of the Midi.

The National Society of Olive growing of France and North Africa, with headquarters at Nice, 36 rue de Tonduti de l'Escarenc, is engaged in encouraging and publishing the development of the most important cultural and industrial processes, particularly in connection with the use of olive oil for motor lubrication, also in regulating olive production in France and North Africa. A Station has recently been established for propaganda for the use of olive oils

which have been almost entirely replaced by seed oils on the French market. A monthly Bulletin is published, which is the official organ of the Society, called "La Revue Oléicole".

Of the 500 oil mills, the majority being of an antiquated type, existing in France, there are 70 co-operative oil mills almost all of which are provided with modern equipment. These Co-operative Societies, have a membership of 35 000 grouped in a Federation called "Fédération des Co-opératives Oléicoles du Midi de la France" with headquarters in Marseilles, 3 rue Goudard. The Secretary General is the well known expert on olive oil production, J. Bonnet, Professor of the Regional Chair of Olive Growing and Director of the Oil Production Station of Montpellier of these Societies 33 are found in Var, 10 — in the Bouches-du-Rhône, 9 — in Gard, 4 — in Hérault, 3 — in Vaucluse, 2 — in Drôme, 2 — in Corsica, 1 — the East Pyrenees.

The objects of these co-operative societies are as follows: (1) To make known the oils produced by the societies by exhibiting them at fairs and exhibitions in France and abroad — (2) To establish and encourage relations between producers and consumers — (3) to initiate activities of a legislative and administrative character for combatting the olive growing crisis.

In a normal year these societies can handle a total of 150 000 quintals of olive oil, being a third of the total production in France.

The total production of table olives amounts to two million kg., of which 1 ½ millions are black olives and the remainder green olives.

The questions of lubrication of combustion engines with olive oil aroused the greatest interest in France. The work carried out in this matter by MM. CHAMPSAUR, WOOG, BATAILLE, BASET, HAVARD, etc., has shown that olive oil prepared under certain conditions is superior to mineral oils for lubricating engines. It possesses a great stability of viscosity in relation to temperature which is a primary quality for lubrication of combustion engines, it is eminently greasy, increases the the output of engines and its use results in great economies being effected. Well purified and neutralised, it contains no sulphur, free fatty acids, moisture, gums or resins. Several marks and types of olive oil have been put on the market which have given satisfactory results according to the press in France and Italy.

The total consumption of oils is estimated at 4 to 5 kg. per capita per annum, or about 2 million quintals, of which 4-5 are chiefly peanut oil. Imports into France of olive oil amount to 350 000 quintals per annum, originating almost entirely in Tunis and Algiers, which added to the 80 000 (round figure) quintals produced in France, give a total of 430 000 quintals of olive oil. Taking into account that the exportation from France of olive oils amounts to 180 000 quintals per annum, it results that the French market only absorbs 250 000 quintals per annum that is a consumption of about half a litre per capita per annum. It will be seen that the consumption of seed oils in France (1 600 000 quintals of peanut, cotton seed and sesame oils) is 8 times greater than that of olive oils. In 1900 the consumption in France of olive oil was estimated at more than 1 million quintals per annum, but it has now been substituted by vegetable fats.

The present quotations for olive oil in the centres of production vary between 540 and 575 francs per 100 ks. The husks are sold to factories which extract the oil by means of solvents (carbon disulfide, trichloride of ethylene, etc.) which is generally used for soap making.

The revival of olive growing in France should be based on the development of the following four fundamental principles: (1) rejuvenation of old trees in a bad condition or attacked by parasites — (2) clearing of too dense groves so that they do not contain more than 100 trees per hectare — (3) application of methods of cultivation adapted to the plant and to conditions of environment — (4) increase in the number of new groves planted. The Law of 7 April, 1932, was a great step forward in the development of olive growing in France and to complete this it will be necessary to issue regulations on the production and trade in olive oil, and to protect it against the ruinous competition from peanut oils. For this reason producers should concentrate their efforts on obtaining oils of constant types appropriate to the requirements of their clientele, which varies from region to region, without, at the same time, disregarding the new industrial possibilities of this product.

A. PASCUAL.

## NEW METHOD OF ARTIFICIAL DRYING OF GREEN CROPS

The large installations for the artificial drying of lucerne, some of which are found in the United States and Great Britain, chiefly work on the principle of gradual drying of layers of crops carried on conveyors. These installations necessitate vast and costly constructions which have the appearance of real factories of dried crops. A small installation, based on a different principle, that is to say, a kind of pneumatic conveyor with hot air, has recently been examined under the auspices of the German Council of Rural Engineering (R. K. T).

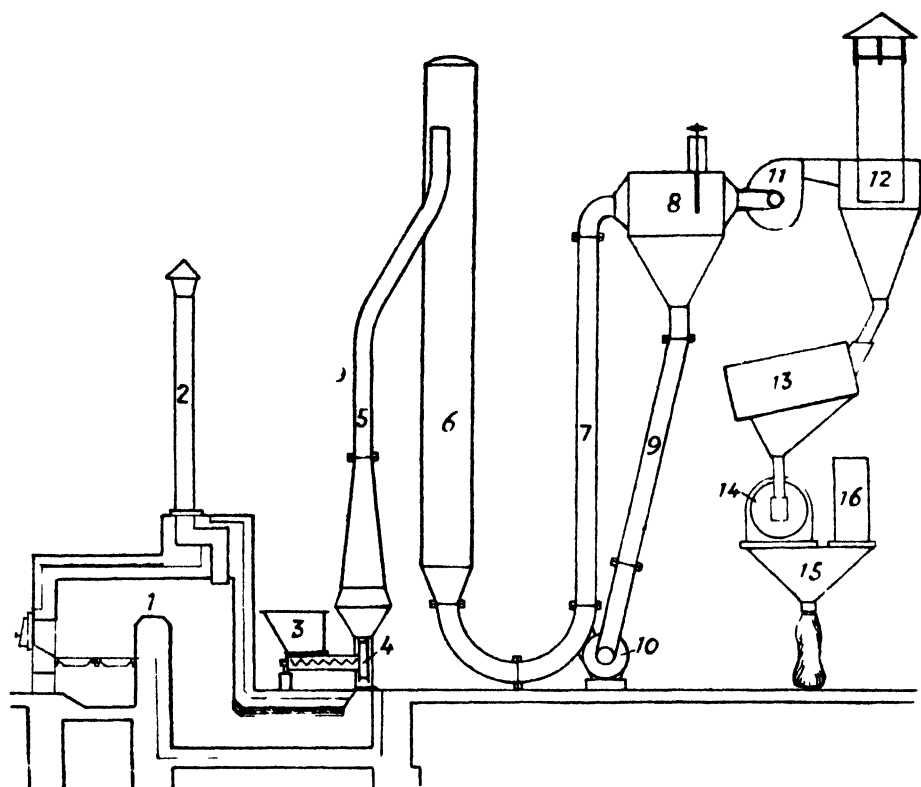
The « Rema-Rosin » drying system has no platform or any other kind of elevator carrying the crops through the dryer. The hot gas alone carries the material through the installation and gives it the name of pneumatic dryer.

This installation consists of a series of vertical tubes communicating with each other, as shown by the plate attached. Drying is done at very high temperatures, between 700° and 800°, and in a very short space of time, during which the crops to be dried do not undergo any deterioration as they have not time to heat up to the temperature of the hot gas.

Before being placed in the dryer, the crops should be cut up as much as possible into small fragments of equal size so that the drying shall be uniform.

The gas is produced in a coke furnace (1). The chimney (2) is only used at the start and is afterwards closed during drying so that the gas, drawn by a suction fan (11) will pass through the tubes of the dryer. The green crops issue from a crop cutter and fall into a hopper which serves as a supply bin and are

carried by an Archimedian screw, which regulates the quantity, into the first tube. The crops come in contact here for the first time with the hot gas and are carried very rapidly by this gas into the second tube (6), larger in diameter and through which the mass of drying crops descend slowly, to rise again very quickly (on account of the very small diameter) into the third and last tube (7). A sifter (8) separates the light and heavy fragments, that is, the dry part from



Plan of the "Rema Rosin" appartus for drying green crops.

that which still contains a little humidity. The dry part leaves the dryer while the heavy particles fall through a return tube (9) into a kind of disintegrator (10) where they are again separated and from whence they return to the last ascending tube (7).

The dried crops leave the sifter and arrive in a separator where the gas escapes by a chimney (12). They then fall into a drying drum (13), and from there into a grinding mill (14) which reduces them to a flour. This passes into a funnel from which it is run into sacks. The air drawn in by the rotation of the mill is eliminated through a filter (16).

To reduce the cost of drying, the crops may be left to dry a little in the fields before being introduced into the dryer.

It has been proved by tests that the digestibility of the albumins does not suffer from the above process of drying.

H. J. HOPPEN.

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## PRESENT STATE OF THE DAIRYING INDUSTRY IN VARIOUS COUNTRIES: (4) CZECHOSLOVAKIA \*

Agriculture in Czechoslovakia is, for the greater part, in the hands of small farmers; 86.5 % of the farms are 10 hectares and under. The medium sized farms, that is from 10 to 30 hectares, only constitute 11.4 %, the farms of from 30 to 100 hectares 1.5 % and the large estates of more than 100 hectares, 0.6 %. The number of very small holdings of one hectare and under amounts to 28.1 %.

In Bohemia and Moravia-Silesia the percentage of cultivated land is higher and in Slovakia and the Russian Carpathians there is more grass land and forest.

The agricultural reform had its effect in the breaking up of large farms into smaller ones. The character of agricultural production has undergone changes in the matter of stock-breeding. This is shown by the fact that the total number of cows in 1920 was 2 027 847 after which it increased up to 2 476 570 in 1932, that is, an increase of 22 %. In consequence of this there was an increase in milk production, all the more in that the average production per cow also increased. Added to this, the importance of dairying increased greatly, chiefly when the other branches of agricultural production intended, principally for the exporting industries, were disasterously curtailed (sugar, for example) so that agricultural interests naturally turned towards dairying. The agrarian reform brought about the formation of a fairly large group of farmers with a small capital for whom the returns from dairying were of vital importance.

The annual production of milk in Czechoslovakia is 4.2 milliards of litres, being utilised as follows: for feeding calves, 11.1 %, direct consumption, 39.8 %, butter production, 47.6 %, and cheese making, 1.5 %. The production of dairy products is carried out by 419 co-operative dairies and about 400 private dairies. These handle about 600 million litres of milk, that is, about 15 % of the total milk production, excluding the milk used for feeding calves.

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\* The previous articles of this series appeared in this *Bulletin* 1934, No. 11 (France), 1935, No. 4 (Italy), 1925, No. 6 (Hungary).

## I. — DAIRYING SPECIES AND BREEDS.

In 1931 there were in Czechoslovakia 2 464 616 dairy cows distributed in the various regions as follows:— Bohemia, 1 261 719 — Moravia and Silesia, 576 108 — Slovakia, 522 075 — Carpathians, 104 6714.

Goats and ewes (1.000.000) are not included in these figures.

## CATTLE.

In east Slovakia and the Carpathians buffaloes are used for milking.

The following breeds of cattle are raised: Berno-hanaque, Simmenthal, Kravařsko, de Cheb red cattle, Sudeten red cattle, Pinzgauer, Sěnhengs, cattle of the steppes, grey-brown mountain cattle and black and white cattle of the plains. There are also many cross-bred cattle.

In Bohemia the red spotted cattle are chiefly found which have been crossed with the Berno-hanaque and also Simmenthal cattle. In Moravia there are Berno-hanaque, Kravařsko and Sěnhengs. Attempts have been made to direct stock-breeding towards unifying all the breeds of red spotted cattle which have a milk yield between 1 000 and 7000 kg with an average of 2 500 to 3 000 kg.

Among native breeds the de Cheb is found in Bohemia with an average milk yield of 1 200 to 2 400 litres. The red Sudeten cattle are a little larger, but give the same amount of milk.

The Kravařsko, which has an yield of 2 600 to 3 000 litres of milk, is found in the neighbourhood of Freiberg, Fulnack and Nue Titschein in Moravia.

The Sěnhengs are native to the districts of Mährisch-Trubau and Hohenstadt and give a yield of 1 500 to 2 500 litres of milk.

In Slovakia the types chiefly bred are the Berno-hanaque, with a yield of 2 000 to 6 000 kg., an average of 2 500 kg, the Simmenthal with a yield of 1 000 to 7 500 kg, an average of 2 500 to 3 000 kg., and the Pinzgauer with a yield of 1 000 to 4 000 kg, an average of 2 000 kg.

In the Carpathians are found the grey-brown mountain cattle obtained by crossing the native mountain cattle with brown Swiss Montafoner, Oberinntaler and Allgäuer. The milk yield is low, 1 000 to 2 000 kg., chiefly on account of the bad feed, but it could be easily and rapidly increased up to 3 500 kg. by intensive feeding.

In the plains of southern Slovakia and in the Carpathians the cattle of the steppes are also bred, but are gradually diminishing in numbers. The yield is rather low is 500 to 2 500 litres, but the milk is rich in fat; an average of 5.5 %.

The black spotted cattle of the plains are found in Bohemia, Moravia and Silesia in both large and small farms. These cattle, which result from crossing East Friesland of the Netherlands with East Prussian cattle, are completely acclimatized wherever feeding is scientific and with good pasture and practical management very high yields may be obtained (7 000 to 9 000 kg. of milk).



(2). — SHEEP.

Sheep-breeding in Czechoslovakia is in a decline. Even in Slovakia and the Carpathians, where sheep-breeding was practiced on a large scale up to a few years ago it has recently undergone a great diminution. In Bohemia and Moravia, sheep are bred on the large farms for butchers meat. The Wallachian sheep are characteristic of eastern Moravia and Silesia and are used for milking. In Slovakia and the Carpathians the Zackelchaft is the chief breed. In these regions the native sheep are the Zigaja which give a milk yield of 135 to 140 litres. Merino, Caracul and East Prussian sheep are also found in Czechoslovakia.

(3). — GOATS.

Goats are to be found on all the small farms throughout the whole country. The native goats are rarely pure bred. Many have been crossed with the white Saanen goats which give a milk yield of 700 to 800 litres according to milk records.

## II. — LIQUID MILK.

The annual production of milk may be estimated for the whole of Czechoslovakia, at 4 166 387 000 litres with an average value of 80 heller per litre. The annual production therefore represents a value of 3 333 109 600 Kc.

The annual production is utilised as follows:—

Feeding calves . . . . .	462 115 000 litres
Direct consumption (0.3 litres per capita per day) . .	1 655 248 000 »
Cheese . . . . .	65 000 000 »
Butter . . . . .	1 983 024 000 »
<hr/>	
Total . . .	4 166 387 000 litres

In Czechoslovakia, in 1920, there were 236 co-operative dairies handling a total of 43.4 million litres of milk. In 1925 there were 340 dairies utilising 182 000 000 litres of milk. In 1932 there were 419 dairies handling 312.0 million litres of milk. These co-operative dairies, in 1932, were distributed as follows: Bohemia, 113 co-operative dairies handling 145 million litres of milk; Moravia-Silesia, 264 co-operative dairies handling 149.6 million litres; Slovakia and the Carpathians, 41 co-operative dairies handling 18.2 million litres. Beside these co-operative dairies there are also about 400 private dairies handling about 200 million litres of milk per annum. These farms and the co-operative dairies supply about 600 million litres of milk annually for co-operative industrial purposes.

In 1933-1934, 17 co-operative dairies were established in the most important centres of production with a capacity of 10 000 to 20 000 litres per day. They

deliver liquid milk as well as utilising it for dairy products. These dairies are already partly functioning and partly in course of construction. They have been specially equipped for the manufacture and sale of butter.

In the principal towns special commissions have been instituted to fix the prices for milk and cream, to introduce pasteurization of milk for direct consumption in several towns, etc.

The population of Czechoslovakia, which is about 13 750 000 inhabitants, consumes 15 to 20 million hectolitres of milk annually, or an average of 0.4 litres per capita in the country and 0.3 litres per capita in the towns.

In 1909 the production of yoghurt was introduced into Czechoslovakia and has developed rapidly. At present the capital town, Prague, produces more than one million bottles and the dairies in the country manufacture large quantities for supplying the various watering places such as Carlsbad, Marienbad, etc.

It may be said that, in general, Czechoslovakia is able to supply the requirements of the country in milk and dairy products and the Government assists the dairying organisations so as to maintain the prices of milk and butter and to encourage a greater and more scientific development in dairying.

### III. — BUTTER PRODUCTION.

The annual production of butter, which is sufficient to supply the requirements of the country, is estimated at 29 320 tons. Within the country the butter is known as "tea butter", table butter and country butter, the two first being exported. The dairies have also introduced butter marks. The production of "tea butter" is estimated at 4 031 500 kg. and that of country butter at 25 288 500 kg. annually. The first is therefore 12 % and the latter 88 % of the total butter production which is 29 320 000 kg. The by-products, such as skimmed milk and butter-milk are used for human consumption, for feeding cattle and for producing  $\frac{1}{4}$  of the curd.

The efforts of the Dairying and Animal Husbandry Syndicate, which has recently been instituted for the purpose of protecting the dairying industry, are directed towards establishing an equilibrium between interior production and exportation. With regard to butter, the question is very difficult as the greater part is country butter and cannot be kept for long periods or exported. Also for table butter the necessity has been recognised for instituting central dairies and warehouses for conserving surplus butter as otherwise the prices of butter cannot be even approximately stabilised. At the present time there are central dairies of this description with warehouses in Prague, Brunn, Tetschen and Landskron.

### IV. — CHEESE PRODUCTION.

The importance of cheese production has decreased greatly during the last few years as nearly all countries have put restrictions on importation. The revenues from this source have diminished almost daily, though Czechoslovakia

has several types of cheese very popular abroad. The principal purchasing countries, Austria, Germany and Hungary have reduced their imports, which were previously very large, to an insignificant percentage. The cheeses which have been most effected are the cream cheses of Olmutz and Brinsen in Slovakia.

Double cream cheeses are produced of the types: Gervais, Impérial, Camembert, Brie, Backstein, Trappiste, Tilsitt, Emmenthal, Roquefort and Dutch.

### (I) SOFT CHEESES.

The production of curd (tvarch) is of great importance considering that cream cheese is one of the chief food stuffs in Czechoslovakia. The manufacture of butter and curd is the ordinary method of utilising milk in the farms. Almost all the skimmed milk and butter milk which remain from butter making are utilised for making curd. The production of curd is also connected with the large consumption of beer and it is chiefly for that reason that kinds of curd made by hand, such as, tvarusky, omolky and sursky, are of considerable importance in the dairying industry in Bohemia and Moravia.

*Olmutz cream cheeses.* — Have a world wide renown and are made with soft mallable curd. According to A. Liska, the milk is heated in summer up to 22–25°C and in winter to 28–30°C. It is then left to acidify slowly, acidification taking place in 10 to 12 hours in summer and 15 to 20 hours in winter. It is then stirred and heated up to 30–32° in summer and 35°C in winter until the cheesy matter appears on the surface which takes place in half an hour to one hour. The curd is then removed and mixed with 3 % salt and kneaded. The cheeses are generally moulded by hand. There are four kinds of cream cheese graded according to weight and sold by the *schock* (60 pieces) weighing from 2.77 to 5 kg. The Olmutz cream cheeses are put in a drying room which can be heated and after three or four days the cheeses are dry. During ripening the loss in weight is from 20 to 30 %.

The *Bauden* cheeses are made in all the Riesengebirge with butter-milk and skimmed milk washed in salt water to bring about ripening, and paprika is added. The weight is about a lb when round in shape and 2 lbs when cylindrical.

In the Carpathians the *Brynza* or Liptauer cheese is made which was already well known during the middle ages. Annual production is 180 wagons. There are three kinds of Brynza according to their fat content: 48.35 %, 47 % and 25–34 % of the dry matter. Cheese with a fat content below 25 % cannot be sold as Brynza.

Brynza cheese is made exclusively with ewes milk. Sometimes 8 to 10 % of cows milk is added to retain the fat of the ewes milk in the cheese. It is manufactured from March to October. The milk is heated up to 30° C, rennet prepared by the goat herd is added and it is curdled in 20 to 30 minutes. The stomach of young lambs, and even young pigs, is used for preparing the rennet. The curd is allowed to drain through a cloth for a day or two and raw "Gomolya" cheese

is thus obtained, being in the shape of an egg. The weight is about 6 to 8 kg. The raw cheese is collected once a week by the cheese manufactures. The fresh cheeses are white, with age they become yellowish or reddish and the eyes are produced as ripening proceeds. The unripe cheeses are ripened with older cheeses in large barrels in which they are placed in layers of from 8 to 12 pieces and left for about 10 days. When the cheese is ripe the rind is removed as it has a very strong and bitter taste. The rind contains many bacteria and yeasts, oidium and moulds. After the rind is removed the centre is used for making the true Brynza while the cheese made with the rind left on is called Korkowicza. The centre is divided into small pieces, salt is added and it is then kneaded again so that the cheese should be uniform and should melt in the mouth like butter. Liptauer is a soft cheese of the Gervais type. The following are the compositions of Brinza and Korkowicza according to LAXA.

		Brynza	Korkowicza
Water . . . . .		38.88–51.90 %	32.74 %
In the dry matter	Fat . . . . .	51.53–59.89	41.89
	Nitrogen substances . . . . .	35.37–39.26	43.07
	Soluble nitrogen substances.	7.48–18.81	6.61 soluble
	Ash . . . . .	5.01– 8.16	8.85

In Slovakia, smoked cheese such as Ostečky, Parenice and Herzkäse are made with ewes milk.

## (2). — HARD CHEESES.

Czechoslovakia is also a region where cheeses of the Emmenthal type are made, that is, in Polonia in the mountain pasture land of the Carpathians. Emmenthal cheese is produced at an altitude of 1 000 metres, it is an excellent table cheese and also serves as raw material for the manufacture of blended cheese.

## V. — OTHER DERIVATIVES.

The production of condensed and dried milk is beginning to develop sufficiently so as to supply the numerous chocolate factories. Imports of these products are equal to exports.

The textile industry is highly developed and the fabrication of galalite and glues necessitates a considerable quantity of casein. The production of this material is only sufficient to supply a part of the requirements of the country.

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## MISCELLANEOUS INFORMATION

INTERNATIONAL DIPLOMATIC CONFERENCE FOR THE STANDARDISATION OF METHODS OF ANALYSIS OF WINES. — This Conference was held at the International Institute of Agriculture on 4 and 5 June, 1935, and was attended by the representatives of the following countries: Bulgaria, Chile, Spain, France, Hungary, Italy, Morocco, Poland, Rumania, Switzerland, Czechoslovakia, Tunis.

Austria and Columbia sent observers

The Conference settled the terms of a Convention, the text of which is given below (Articles and Appendices).

## INTERNATIONAL CONVENTION FOR THE STANDARDISATION OF METHODS OF ANALYSIS OF WINES IN INTERNATIONAL TRADE.

### ART. 1.

With a view to ensuring the application of the principles established by Articles 2 and 3 below, the High Contracting Parties engage to introduce into their regulations provisions prescribing methods for the analysis of wines, applicable to any controversy that may arise in the international wine trade.

### ART. 2.

On the basis of Article 1, above, the High Contracting Parties engage to introduce into their national regulations, and in view solely of the international wine trade, provisions for the *rapid analysis* of wines in conformity with those contained in *Appendix A* of the present Convention.

## ART. 3.

On the basis of Article 1, above, the High Contracting Parties engage to introduce into their national regulations, and in view solely of the international wine trade, provisions for the *detailed analysis* of wines in conformity with the terms of *Appendix B* of the present Convention.

## ART. 4.

In case of any controversy arising with regard to the application of Articles 2 and 3 or to the interpretation and application of the rules contained therein, one of the Parties concerned, in agreement with the other Party, is empowered to request the International Institute of Agriculture to take steps with a view to conciliation and, as a last resort, to have recourse to the Permanent Court of International Justice after having exhausted every means of arriving at a settlement.

For the purpose of action with a view to conciliation, a Committee, on which the States concerned and the International Institute of Agriculture will each appoint an expert, will consider the question in dispute, taking into account all documents and relevant corroborative evidence. This Committee will issue its report, which the International Institute of Agriculture will communicate to each of the Countries concerned, full liberty for the Governments to take further action being reserved.

The Governments concerned engage jointly to bear the cost of the work of the experts.

## ART 5.

Countries which have not signed the present Convention will be allowed to subscribe thereto on their request.

Notice of subscription to the Convention will be conveyed through diplomatic channels to the Italian Government, which will inform the Contracting Countries and also the International Institute of Agriculture and the latter, in its turn, will inform the International Wine Office.

## ART 6.

All contracting or subsequently subscribing countries may, at any time, notify the Italian Government that the present Convention is applicable to all or part of their Colonies, Protectorates, Mandated Territories, Territories under their sovereignty or authority, or all Territories under their suzerainty. The Convention will apply to all territories mentioned in the notification. In default of such notification the Convention will not be applicable to such territories.

## ART 7.

All contracting or subscribing Countries which may desire to modify the text of *Appendices A* or *B* of the present Convention, should so inform the International Institute of Agriculture.

The Institute will submit the text of the modifications requested to the approval of a Commission of five experts appointed by the Institute after consultation with the Governments of the Contracting States as to the persons to be chosen for this purpose. The members of this Commission shall be elected every three years.

It shall include an expert appointed by the Government which has requested the modification.

In cases where the modifications requested are approved by the Commission, the Institute will so inform the contracting or subscribing Countries and will request them to notify their agreement within a period of six months. At the end of this period, the contracting or subscribing Countries which have not replied will be considered as having accepted.

The modification will enter into force six months after the date of the despatch of the letter by which the International Institute of Agriculture shall have notified the contracting or subscribing Countries of their unanimous acceptance of the proposed modification as the result of the application of the terms of the above paragraph.

On the request of a contracting or subscribing Country, the Commission of five experts mentioned in the above paragraphs, may also propose international methods of analysis for the determination of points, which do not appear in *Appendices A and B* and may specify them in cases of a simple recommendation for a particular dosage.

The procedure to be followed in regard to such proposals will be identical with that indicated for modification of methods proposed by a contracting or subscribing Country

#### ART 8

The contracting or subscribing States engage to exchange between themselves their sets of laws, decrees and regulations concerning wines and national methods of analysis, and to inform the official Customs offices appointed by the Governments to carry out these operations, as also the Official Institutions authorised to issue certificates. Complete sets of these documents and data should also be sent to the International Institute of Agriculture, which will inform the International Wine Office

#### ART. 9.

Any contracting or subscribing Country wishing to withdraw from the Convention either for the whole of its territories or only for all or part of its Colonies, Protectorates, Possessions, or Territories cited in Article 6, should notify the Italian Government, which will immediately advise the other subscribing States and the International Institute of Agriculture, at the same time informing them of the date on which the notice of withdrawal has been received.

Such withdrawal will take effect with regard to the Countries or Colonies, Protectorates, Possessions or Territories mentioned in the document notifying withdrawal only after the expiry of a year after the notification has been received by the Italian Government

#### ART. 10.

The present Convention shall be ratified as soon as possible and the ratifications shall be lodged with the Italian Government.

Notice of each ratification will be given by the Italian Government to the other contracting Countries, and also to the International Institute of Agriculture.

#### ART. 11.

Each Country will have the power to declare, at the time of lodging its ratification, that it makes its own application of the present Convention conditional on its application by certain Countries specifically mentioned.

The present Convention will enter into force when it has been ratified by at least three Sovereign Powers, unconditionally or under conditions which have already been fulfilled.

In this case, the Convention will come into force six months after the date of the third ratification.

For all other ratifying or subscribing Countries the Convention will come into Force within a period of six months following their ratification or subscription.

#### *Appendix A.*

### RAPID METHOD OF ANALYSIS

This method will necessarily include—

An organoleptic examination

Determination of density.

Dosage of alcohol.

Dosage of dry extract .

Estimation of reducing substances.

Estimation of content in sulphates

Determination of mineral substances (ash) and their alkalinity.

Dosage of acid substances (total and volatile). .

Dosage of sulphurous anhydride.

Investigation for antiseptics, edulcorating substances and examination of the colouring matter.

*Organoleptic examination* — A detailed organoleptic examination is indispensable. It should include the appearance of the wine, colour, limpidity, odour, flavour when exposed to the air for 24 hours at 15°. If necessary, it should be completed by a microscopic examination, in order to ascertain whether the wine contains an abnormal proportion of acetic or other bacteria (germs causing sourness, bitterness, fat, etc.).

The results of the organoleptic and microscopic examination may induce the chemist to omit the summary analysis and proceed at once with the detailed analysis.

When the wine is cloudy, it should be filtered through paper, taking care to cover the funnel and to make the analysis with the filtered wine. This operation should be mentioned in the report on the analysis

*Density* — After having eliminated, if necessary, the carbonic acid, the density should be determined at a temperature as near as possible to 15° and using either a centesimal densimeter, a picnometer, or a hydrostatic balance. The result should be brought up to 15° and should be worked out to 4 decimal places. The limit of error permissible should not go beyond the fourth decimal place

*Degree of alcohol.* — The wine and must first be distilled and carefully neutralised and then titrated either by means of very exact alcoholmeters, or a picnometer or a hydrostatic balance. The result brought to 15°, should be expressed, in conformity with the Convention of 1912, both in grammes per litre and percentage of volume (Gay-Lussac degree and to a tenth of a degree). The limits of error permissible in this last method of expression may not be more or less than 0.1°.

*Dry extract.* — The dry extract shall be determined by the densimetric method based on the specific gravity of the wine at 15° and on that of the alcoholic distillation at 15°. In expressing the result it is indispensable, while awaiting the conclusions of



the comparisons in course and a subsequent agreement on this subject, to indicate the formula used for determining from these tests, the value of the dry extract. (formulae; Ackermann, Houdart, Dujardin-Salleron, Roussoupoulos, etc.). The variation between two results may not exceed 0.5 grammes per litre.

*Reducing substances.* — For ordinary dry wines a qualitative test should be made, utilising wine decolorized by the minimum amount of black decolorant, also the quantity of solution of copper and potassium corresponding to one or two grammes of inverted sugar per litre, and employing 10 cc. of wine. The result should be expressed as follows: reducing substances  $\leq 1$  gramme, but  $\geq 2$  grammes.

If the test indicates a quantity of inverted sugar in excess of 2 grammes per litre, the exact dosage should be determined utilising the process indicated in the detailed analysis.

*Sulphate.* — A qualitative investigation of sulphates should be made using a titrated solution of barium chloride with hydrochloric acid added.

The results should be expressed as follows: potassium sulphate per litre  $\leq 1$  gramme or  $\geq 1$  gramme, but  $\geq 2$  gramme or  $\geq 2$  grammes.

If the test indicates a quantity greater than 2 grammes per litre the exact dosage should be determined, utilising the process indicated in the detailed method.

*Mineral substances (ash).* — Calcinate to dark red a given quantity of wine and weigh the white ash. If necessary lixiviation may be employed.

Determine the alkalinity of the total ash by the method of orange colouration with the correction corresponding to the phosphates determined by the colorimetric method.

#### *Acidity:—*

(a) *Total acidity.* — Place a carefully measured quantity of wine in a flat bottomed flask, bring up to 80° by placing for a few minutes in a bain marie, so as to eliminate the carbonic acid, and leave to cool. By means of a graduated burette, drop a titrated alkaline solution (soda or potash) into the wine, then add the solution drop by drop until saturation point is reached. This should be ascertained by testing with sensitive sunflower paper. The use of phenolphthalein is strictly prohibited.

(b) *Volatile acidity.* — Draw off the volatile acids by means of a current of steam. The wine tested should previously be heated in a boiling bain marie (modified Blarez method). Pass the current of steam over the wine taking care to keep up the level of the wine. Titrate the acidity of the distillation, using sensitive sunflower paper as indicator.

Phenolphthalein may be used for this last titration provided that it is mentioned in the report of the analysis.

If the wine contains sulphurous anhydride, ascertain the proportion in both forms, in the distillation. The acidity corresponding to the free sulphurous anhydride and half of that corresponding to the sulphurous anhydride combined should be subtracted from the volatile acidity.

(c) *Expressing the results.* — The results of the tests for acidity dosage should be expressed, in conformity with the terms of the Convention of 1912, in cc. of normal alkaline solution per litre of wine and at the sametime, in the form in current use in the country where the analysis is made.

The admissible variations between two tests should not exceed 1 cc. of alkaline solution N. for the total acidity and 0.2 cc. for the volatile acids.

*Sulphurous anhydride:—*

(a) *Free sulphurous anhydride (in white wines only).* — Titrate directly with a titrated solution of iodine, using starch paste as indicator.

(b) *Total sulphurous anhydride.* — Use either the Rippert method (titration with an iodine solution, the wine having been previously treated with a surplus alkaline solution, then acidified with sulphuric acid) or the Haas method (displacement by phosphoric acid and drawing off by a current of carbonic acid. Oxydation by iodine and ponderal or titrimetric methods of dosage.

The method used should be mentioned in the report on the analysis.

The permissible variations between two tests made on the same day are 0.002 gramme for free sulphurous anhydride and 0.005 gramme for total sulphurous anhydride.

*Appendix B.*

## DETAILED METHOD OF ANALYSIS

*Organoleptic examination.* — A detailed microscopic examination should be made. To determine the *density*, the *dosage of alcohol*, of *dry extract*, of *mineral substances*, of *total and volatile acids*, and of *sulphurous anhydride* proceed as described in the rapid method.

*Reducing substances:—*

(a) *Defecation of the wine.* — Defecation of the wine should be carried out either by the lead subacetate process or by the acid sulphate of mercury process. In applying this last process it will be necessary to take special precautions if the wine contains saccharose.

(b) *Dosage.* — Use only the methods in which solutions of copper and potassium are employed. Proceed with the titrimetric method (iron sulphate and permanganate methods or iodine and thiosulphate) or with the gravimetric method (weighing the cuprous oxide obtained with wine defecated with lead and strictly neutral, or with reduced metallic copper). This last method is only to be recommended for wines rich in sugar (more than 10 grammes per litre).

(c) *Polarimetric examination.* — Use preferably the solution defecated with acid sulphate of mercury. Examine in a tube of 20 cm. at 20° C.

*Dosage of saccharose.* — First proceed with the application of the methods described above, taking necessary precautions.

The results of dosage of reducing substances and saccharose should be expressed in grammes of inverted sugar per litre for reducing substances, and in grammes per litre for saccharose.

*Tartaric acid.* — As the inadequacy of methods based on precipitation of bitartrate and volumetric titration is now recognised, it is recommended to employ the racemate of calcium method (Kling method). The results should be expressed in cc. of alkaline solution and in potassium bitartrate per litre.

*Alkalinity of the ash.* — Utilise the total ash of 50 cc. of wine obtained as described in the rapid method of analysis. Re-titrate after dissolving in sulphuric acid N/10, add calcium chloride and use phenolphthalein as indicator (Farnsteiner method).

Express the results both in cc. of normal solution and in grammes of potassium bitartrate per litre. Permissible error, cc. 0.5.

*Total phosphorus.* — Destroy the organic matter by the mercurio-nitric method and precipitate the phosphoric acid by the accepted methods. Express the results in grammes of phosphoric anhydride per litre.

Permissible error 0.010 grammes per litre.

*Sulphates.* — Precipitate at boiling point in an acid solution (1-2 %  $\text{HCl}$ ) by an excess of barium chloride, filter, calcinate and weigh. With highly sulphated wines operate in a current of carbonic acid. Express the results in grammes of neutral potassium sulphate per litre. Admissible error 0.050 grammes.

*Fixed acidity.* — Determine the fixed acidity by subtracting the volatile acidity (uncorrected) from the total acidity.

## PROTOCOLE OF SIGNATURE

The Conference, having recognised the impossibility of including in the text of the Convention, with regard to certain dosages, processes of which the accuracy is sufficiently proved by experience, considered it only possible to recommend, for these special determinations, the following methods, to be applied in certain particular cases only which it considers the best in the present state of oenological science.

*Citric acid.* — Qualitative tests by the Deniges or Stahre methods. Dosage analysis where required by the Kunz method.

*Lactic acid.* — Either the Bonifazi method if the wine contains from 1 to 4 grammes of lactic acid and less than 5 grammes of sugar, or the Semichon and Flanzky method by chromic oxidation should be used.

The results should be expressed both in cubic centimeters of alkaline solution N in grammes of lactic acid per litre.

*Succinic acid.* — Use the Semichon-Flanzky method for verifying the purity of the ammonia succinate obtained (deduction of ash or extraction by ether, and titration with silver nitrate).

*Glycerine.* — Use the methods of extraction by steam and dosage by chromic oxidation. (Ferré-Bourges method modified by Semichon and Flanzky or the von Pellenberg method).

*Potash.* — Dosage at the perchlorate state after destruction of the organic matter by nitric acid and mercury.

**ACTION FOR THE IMPROVEMENT AND UNIFICATION OF FORESTRY STATISTICS.** — Last year, by an agreement between the International Institute of Agriculture and the International Institute of Statistics, was formed a mixed study Commission for the improvement and unification of forestry statistics, on which four forestry experts nominated by the International Institute of Agriculture and four members of the International Institute of Statistics selected by the latter were asked to sit. The four forestry experts are Mr. Colomb, Controller of Water and Forests, Chief of the Forestry Economic Bureau of the Ministry of Agriculture of France, Professor Ougrenovic, Dean of the Faculty of Agriculture & Forestry and Professor at the University of Zagreb, Mr. Story of the British Forestry Commission and Member of the Council of the Empire Forestry Association, and Professor Streiffert of the Higher School of

Sylviculture of Stockholm. The four members of the International Institute of Statistics nominated by this Institute are Dr. Coats, Dominion Statistician of Canada, Dr. Dore, Director of the Bureau of Statistics of the International Institute of Agriculture, Dr. Jahn, Director of the Statistical Office of Norway, and Dr. Saenger, Former President of the Statistical Office of Prussia.

The Commission did a great deal of preparatory work by correspondence. Each member, by means of a report which was communicated to all the other members, expressed his views on the problems which could advantageously be studied and the solutions which, in his opinion, were most likely to contribute towards the ends in view. With the documentation collected and distributed in this way it was possible to form a clear idea of the concurring and divergent opinions and of the possibilities of co-ordinating and harmonising the various proposals with the object of forming a planned scheme of forestry statistics, based on strict technical criteria and suited to the conditions of countries in general.

With the object of accomplishing this work of co-ordination, for which a direct discussion was indispensable, the eight experts were called to Rome where, on 11th to 14th June 1935, the Mixed Commission for the Study of Forestry Statistics held a meeting.

The proceedings under the competent chairmanship of Mr. Colomb and with the active participation of all the members attained their object. The Commission was able to agree on a scheme of forestry statistics in which the items, definitions and classifications which would have to be adopted internationally for the improvement and unification of this important branch of statistics were specified.

The main questions examined and resolved by the Commission are concerned with the definition of forest area for statistical purposes, the division of this area according to various criteria, estimates of the standing timber and the annual increment of forests and statistics of the output obtained annually (cutting). The items which were thought to be indispensable or desirable in each of these subjects were determined. Other recommendations dealt with estimates of the area, standing timber and production of trees not in forests which supply or could be made to supply timber, with the damage caused by forest fires, insects, winds and other adverse influences, and with the production of the main forest by-products. Finally, the Commission expressed desiderata concerning instruction in the methods of statistical investigation, the units in which data were to be expressed and the frequency with which investigations were to be made.

As the foregoing passages show, the Commission for the present has restricted its studies and proposals to forestry statistics proper. This limitation was determined by the advisability of not enlarging the scope of its work too much in its first session and by the fact that some of the rather commercial and industrial aspects of timber statistics are now the concern of a special Sub-committee (1) of the Committee of Statistical Experts, set up by virtue of the International Convention of 1928 for Economic Statistics. The Commission explicitly stated, however, that it would be extremely interesting if, side by side with the statistics with which it is now occupied, other useful forestry statistics (statistics of the timber trade and the trade in other forest products, of consumption, prices and industrial establishments which work up timber) were perfected and made uniform.

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(1) The co-ordination between the work of this Sub-committee and the Mixed Commission is provided for by the fact that three of the experts of the Commission also sit on the Sub-committee.

The scheme of statistics decided upon by the Mixed Commission for the Study of Forestry Statistics will be explained in a report, which will be presented at the next Session of the International Institute of Statistics. When this meeting has examined, reviewed and finally approved the proposals of the Commission, they will be submitted in their final form to the Permanent Committee of the International Institute of Agriculture, which after having approved them in its turn, will communicate them to all the Governments urging their application.

## BOOK NOTICES (\*)

*Agenda dell'Agricoltore*, 456, p., Verona, 1935-XIII, Ente autonomo Fiera di Verona.

[In this small, but attractively presented volume, bound in hemp cloth, will be found an agricultural Agenda for the period April 1935 to April 1936 and also a catalogue of the 39th Fair of Verona which took place from 10 to 19 March, 1935 and in which numerous foreign countries took part.

Independently from this Agricultural and Horse Fair, there is organised each year at Verona a Fishery Exhibition (12-15 August) and an autumn Horse Fair (12-16 October).

The 40th Agricultural and Horse Fair will take place at Verona from 8 to 6 March 1936].

G. R.

WINKLER W., *Wegweiser für die Milchwirtschaft*, 591 p., 180 fig. Verlag Carl Fromme, Wien V, Nikolsdorfer Gasse 7-9.

The advantages of this Guide to the Dairying Industry are above all its clarity and practical utility. The Author, who is already well known by his numerous publications on dairying, has concentrated chiefly on the practical aspect. His work is useful, not only to milk producers, but also to technicians in the dairying industry. The large field covered by the Author, also from the standpoint of profit capacity well be seen from the following chapters:—

I. — *Dairying and dairy cattle breeding* (importance and advantages of dairying: fundamental conditions for profit making: appreciation and choice of dairy cattle according to the physical constitution and dairying characteristics: health and resistance: suitability for breeding purposes and reproduction: genealogy and heredity: age for first union).

II. — *Composition, food value and properties of milk* (normal milk, colostrum and abnormal milk: food value of milk: characteristics of milk).

III. — *Structure of the udder and formation of the milk.*

IV. — *Milking (milking machines).*

V. — *Influence of breed, characteristics, age and size of the cows on the milk yield and its composition.*

VI. — *Periods of lactation and calving.*

(\*) Under this heading are included short synopses of books received for review.

VII. — *Influence of movement and work, weather conditions and diseases on the milk yield.*

VIII. — *Feeding dairy cattle.*

IX. — *Attention required by dairy cattle.*

X. — *Stabling dairy cattle.*

XI. — *Manure and liquid manure pits.*

XII. — *Bacteria, yeasts and fungi in milk and in the dairying industry* (alterations to milk left to stand: bacteria, yeasts and fungi frequently found in milk products: origin of germs in milk: control of injurious germs and cleanliness; defects in milk: reproduction of bacteria, yeasts and fungi: pure cultures and enumeration of bacteria).

XIII. — *Preservation and Treatment of milk* (prescriptions for milking: cleaning milk: cooling: preservation of milk by heating: condensed and dried milk: preservation of milk with chemical substances).

XIV. — *Analysis of milk* (taking of samples. examination of milk for composition and adulteration: analysis of milk for sale as liquid milk and for industrial purposes: analysis of milk from the point of view of hygiene).

XV. — *Weighing and measuring milk.*

XVI. — *Transport.*

XVII. — *Cream production and butter making* (cream production: general remarks, skimming, separating: butter making: butter kegs and their upkeep, butter making properly so called, shaping, packing, preservation of butter, ripening cream properties and quality of butter, content in germs, deterioration, composition, yield and analysis of butter).

XVIII. — *Cheese making* (separation of the casein in the milk. rennet: natural rennet, rennet extract, rennet powder: examination of rennet, rules for the use of rennet: curd: general properties and appreciation of cheeses: classification, cheese-making: reception and analysis of milk, regulating the milk in the heater with regard to the fat content, preliminary heating, colouring, renneting, cutting the curd, shaping, turning pressing and salting, drying, ripening: cheese factories: preparation of the principal kinds of cheese: yield in cheese: uses of cheese: failures: principal methods of analysis average composition of a few kinds of cheese).

(A) Cheeses prepared with sweet milk or renneted cheeses prepared with cows milk.

Soft cheeses: unripened soft cheeses (Gervais, Imperial, white cheese, yoghourt): ripened soft cheeses (soft French cheeses with *Penicillium* on the outside; Italian cheeses and others ripened by means of a special preparation of the rind; soft cheeses ripened by means of *Penicillium glaucum* in the interior).

Hard cheeses: hard cheeses of the Swiss type (Full Emmentahl, semifull Emmenthal, Gruyère, dry cheeses); hard cheeses of the Dutch type (Edam, Gonda, Trappiste, Tilsit); hard Italian cheeses (Grana, Parmesan, Caciocavallo); Anglo-American hard cheeses (Chester, Cheddar).

(B) Cheeses prepared with acid milk (cream cheeses such as Hartz, Nayence, Tyrol, Vorarlberg, "Schrötkäse" and cream cheeses such as "Topfkäse, Tiroler Graukäse", "Radstädter Bauernkäse").

(C) Blended cheeses (Emmenthal, Dutch cheese in boxes, cooked cheeses, Caciocavallo etc.).

(D) Ewes' milk cheeses (Brynza, Percorino, etc.)

(E) Goats' milk cheeses ("Käsemäcket" "Glarner Schabzieger", etc.).

XIX. — *Cream, skimmed milk, butter milk and whey.*

XX. — *Dairying from the economic point of view* (milk production; utilisation of milk; dairies: supplying Towns)

XXI. — *Organisation and encouragement of the milk industry.*

The popularisation of this book which [treats everything concerning dairying in such a clear and practical manner, is to be highly recommended].

E. G.

## PUBLICATIONS RECEIVED BY THE LIBRARY

### Books.

#### *General*

BERKSHIRE FARMERS' YEARBOOK 1935. Reading, National farmers' union, 1935, 116 p.

CAMBRIDGE UNIVERSITY. Agricultural society magazine 1935. Cambridge, 1935. 62 p.

XV<sup>e</sup> CONGRÈS DE L'AGRICULTURE FRANÇAISE. Blois: 26-29 Juin 1933. Compte rendu des travaux. Paris, Confédération nationale des associations agricoles, 1933, 300 p.

GARRE, A. L. Curso elemental de agricultura española, economía e industrias. 2. ed. Granada, Urania, 1934. 650 p.

YORKSHIRE AGRICULTURAL SOCIETY. Transactions for the year 1934. No. 92. York [Watmoughs] 1935.

#### *Crops of temperate regions.*

BANDINI M. Caratteri e problemi della risicoltura italiana. Roma, [Istituto nazionale di economia agraria], 1935. 472 p. (Istituto nazionale di economia agraria. Studi e monografie, n. 20).

#### *Crops of tropical and subtropical regions.*

BRITISH COTTON GROWING ASSOCIATION. 30th Annual report for 1934. Manchester, Sherratt & Hughes, 1935. 64 p.

COTTON TRADE JOURNAL. 8th International edition. 1934-35. New Orleans, La., 1935. 168 p.

COTTON YEARBOOK 1935. 30th Year of issue. Manchester, « Textile Mercury », 1935. 616 p.

EMPIRE COTTON GROWING CORPORATION. Report of the administrative council of the Corporation submitted to the 14th annual general meeting on May 28th, 1935. London, Waterloo, 1935. 66 p.

#### *Plant protection.*

CATONI G. Malattie e degenerazione della patata, con brevi norme per la selezione, la coltura e la conservazione. Trento, Arti grafiche Saturnia, 1935. 143 p.

TRAVERSO, O. Insetti e crittogame parassiti delle piante da frutto, ornamentali, ortensi e agrarie. Anticrittogamici e insetticidi: metodi per usarli contro i parassiti. Milano, F.lli Ingegneri, [1935]. XV, 268 p.

*Horticulture.*

ANNUAIRE HORTICOLE INTERNATIONAL. 15ème année. Edition 1934. Nice, H. Rio, 1934. 2 vols.

v. I. Horticulture. v. II. Fruits, légumes, primeurs.

MOISSI, F.; E. PLANCKH; F. ZWEIFELT. Beerenobst? Beerenobst! Leitfaden zur erfolgreichen Beerenobst-Kultur und Beerenobst-Verwertung. Wien, Scholle 1935. 116 p. (Scholle-Bücherei, 117. Bd.)

*Vineyards.*

TAIX, G. La faillite de la viticulture est elle pour demain? Bordeaux, Delmas, (1934) 77 p.

*Sylviculture.*

USTREDNI JEDNOTA ČESKOSLOVENSKÉHO LESNICTVA. Všeobecný lesnický adresář. Tábor P. Frank, 1934. 267 p.  
[General Directory of Forestry in Czechoslovakia].

*Rural Engineering.*

WADE, C. P. C. Mechanical cultivation in India. A history of the large experiments carried out by Burmah-Shell oil storage and distributing co of India, ltd. Delhi, Manager of publications, 1935. IX, III, 124 p. (Imperial council of agricultural research. Scientific monograph n. 9).

*Agricultural Industries.*

BRITISH DAIRY FARMERS ASSOCIATION. Journal. v. XLVII. London, Baxter, 1935. 434 p.

CAMBRIDGESHIRE AND DISTRICT MILK RECORDING SOCIETY. 1933-34 Official handbook and annual report. [Reading, Palmer press], 1935. 68 p.

CREAMERY YEARBOOK & DIARY 1934 [and] 1935. Dublin, Irish creamery managers' association, 1934-1935. 2 vols.

DORSET MILK RECORDING SOCIETY. Report for the year ended 1st October 1932-1934. Dorchester, Longman, The Friary Press 1933-1935. 2 vol.

*Various.*

BIBLIOGRAPHIE DES SCIENCES GEOLOGIQUES. Tome V. (1934). 2ème série. Paris, Société géologique de France, 1935. 342 p.

In connection with the article on Rice Growing in Bulgaria (*Monthly Bulletin of Agricultural Science and Practice* No. 5, May 1935, page 223 lines 1-4) our attention has been drawn to errors in respect of the interpretation which is given therein to certain provisions of the Koran in regard to property in land.

We have to state that the responsibility for the article in question lies with the writer, M. Vladimir D. Protich.



# MONTHLY BULLETIN

OF

## AGRICULTURAL SCIENCE AND PRACTICE

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### ORIGINAL ARTICLES

#### THE INTERNATIONAL SITUATION AND PROBLEMS OF HORSE-BREEDING (\*)

##### Part. 1. — Survey of the development of horse-breeding throughout the world.

###### SUMMARY

###### I — DEVELOPMENT IN THE NUMBER OF HORSES

###### II CAUSES AND CONSEQUENCES OF THIS DEVELOPMENT

- (1) Influence of the war and its results on the number of horses
- (2) Influence of technical progress (Motorisation) on the number of horses
- (3) Influence of the economic development and agrarian policy on the number of horses

###### III CHANGES IN THE METHODS AND AIMS OF HORSE-BREEDING

- (1) Changes in the method of utilising horses
- (2) Changes in the composition of the total number of horses
- (3) Evolution of different breeds of horses

###### I — DEVELOPMENT IN THE NUMBER OF HORSES IN THE WORLD

Opinion differ greatly as to the future of horse breeding the development during the last few years and the causes of this development. Many factors tend to obscure the outlook on the situation such as for example the increase in the use of motors and agricultural machinery the apparent disappearance of horses from the towns and, last but not least the articles in the daily and technical press with an interested bias. It is rather difficult to obtain an idea

(\*) This article is the first of a series which as a whole will give a general survey of the present situation and international problems of horse breeding. The first part is shown by the summary is devoted to the numerical and qualitative development in the number of horses in the different countries from the view point of horse breeding throughout the world also the causes and consequence of this increase. The other parts of the series will be devoted to the efforts which have been made to improve horses (yield trials progress of the science of judging horses studies on the work of the horse the most scientific utilisation of horses and finally the different methods whereby the use of horses may be more satisfactorily encouraged) to various other problems of horse breeding and its organisation.

TABLE I. — *Number of horses (in*

Countries	1920	1921	1922	1923	1924	1925
1 - U S S R . . . . .	*) (35,800)	29,600	24,100	24,600	25,700	27,000
2 - United States (1) . . . . .	19,366	18,760	18,123	17,365	16,640	16,067
3 - Argentina . . . . .	9,366	—	9,432	—	—	—
4 - Brazil . . . . .	5,254	—	—	—	—	—
5 - Poland (2) . . . . .	—	(**) 3,290	—	—	—	—
6 - Germany (2) . . . . .	3,588	3,666	3,650	—	3,855	3,917
7 - Canada . . . . .	3,400	3,814	3,649	3,531	3,589	3,554
8 - France . . . . .	2,635	2,706	2,778	2,847	2,859	2,880
9 - India . . . . .	2,138	2,195	2,196	2,164	2,188	2,187
10 - Manchuria . . . . .	—	—	—	—	—	—
11 - Rumania . . . . .	1,485	1,687	1,802	1,828	1,845	1,815
12 - Mexico . . . . .	—	—	—	—	—	—
13 - Australia . . . . .	2,416	2,438	2,390	2,327	2,292	2,250
14 - Japan . . . . .	1,168	1,519	1,570	1,592	1,569	1,553
15 - Yugoslavia (3) . . . . .	—	1,062	1,014	1,063	1,054	1,100
16 - Great Britain and North Ireland (2) (4) . . . . .	1,679	1,702	1,652	1,607	1,543	1,462
17 - Colombia . . . . .	—	—	—	—	964	975
18 - Italy . . . . .	—	(5) 989	—	—	—	—
19 - Union of South Africa . . . . .	—	920	—	858	848	811
20 - Hungary . . . . .	636	—	717	815	850	876
21 - Cuba . . . . .	841	859	889	841	785	685
22 - Czechoslovakia . . . . .	591	—	—	—	—	730
23 - Sweden . . . . .	728	—	—	—	—	—
24 - Netherlands India . . . . .	661	704	721	755	744	730
25 - Uruguay . . . . .	—	—	—	—	513	—
26 - Lithuania . . . . .	—	409	455	505	482	497
27 - Spain . . . . .	—	722	594	626	631	605
28 - Turkey . . . . .	—	—	—	—	—	—
29 - Denmark . . . . .	602	598	576	562	548	536
30 - Bulgaria . . . . .	398	—	—	—	—	—
31 - Chili . . . . .	—	—	329	—	—	321
32 - Irish Free State . . . . .	488	490	487	473	460	434
33 - Péru . . . . .	—	—	—	—	192	—
34 - Haiti . . . . .	—	—	—	—	—	—
35 - Bolivia . . . . .	—	—	—	—	—	198
36 - Latvia . . . . .	261	282	303	341	340	352
37 - Finland . . . . .	385	392	398	400	403	402
38 - Philippines . . . . .	269	279	78	291	288	294
39 - Greece . . . . .	200	177	211	194	259	270
40 - Siam . . . . .	133	142	156	166	221	232
41 - Netherlands (2) . . . . .	—	364	—	—	—	—
42 - New Zealand . . . . .	346	337	332	331	330	327
43 - Austria . . . . .	236	—	—	283	—	—
44 - Belgium (3) . . . . .	205	222	230	243	252	250
45 - Morocco (French Zone) (10) . . . . .	—	143	150	162	174	186

(1) Farm horses, assessment on 1 January of the year following that shown at the head of the column. —

Ireland with the exception of the years 1920, 1921, 1922 — (5) Re-assessment of 1918 excluding the invaded

(8) Horses and mules — (9) In agricultural and forestry enterprises only. — (10) Taxed horses. — (\*) (1916). —

(thousands) in various countries.

1926	1927	1928	1929	1930	1931	1932	1933	1934
29,200	31,564	33,530	34,600	30,236	26,247	19,638	16,645	15,600
15,368	14,768	14,203	13,684	13,169	12,621	12,203	11,942	11,827
—	—	—	—	9,858	—	203	63	—
—	—	—	—	6,573	6,827	—	—	—
—	4,069	—	4,047	4,103	4,124	3,910	3,773	3,760
3,873	3,810	3,718	3,617	3,522	3,451	3,395	3,397	3,374
3,398	3,422	3,377	3,376	3,295	3,114	3,089	2,984	2,933
2,894	2,927	2,936	2,986	2,924	2,920	2,900	2,878	2,838
2,129	2,157	2,214	2,246	2,356	2,332	2,323	...	—
—	—	—	—	—	2,438	2,423	2,195	—
1,877	1,942	1,945	1,959	...	1,988	2,034	—	—
—	—	—	—	1,887	—	—	—	—
2,123	2,041	1,943	1,846	1,793	1,776	1,765	1,749	—
1,444	1,495	1,494	1,490	1,490	1,477	1,541	...	—
1,117	1,120	1,109	1,140	1,161	1,169	1,157	1,187	—
1,417	1,357	1,309	1,265	1,222	1,194	1,171	1,154	—
980	978	—	929	—	1,000	926	—	—
(6) 1,050	—	—	—	942	—	—	—	—
856	—	—	—	836	—	—	—	—
885	903	918	892	860	865	846	820	803
—	759	—	758	—	—	—	—	—
—	—	—	—	748	—	708	701	701
—	620	627	—	653	656	660	659	—
712	709	706	708	681	655	681	650	—
—	—	—	—	622	—	—	—	—
535	617	611	588	561	592	589	581	570
—	—	—	598	—	562	—	568	—
—	491	424	457	463	481	511	511	—
548	525	518	521	494	499	496	501	—
482	—	—	—	—	—	—	—	—
—	—	—	—	141	—	—	—	—
424	429	433	436	448	450	446	441	—
—	—	—	432	—	—	—	—	—
110	115	250	280	310	350	400	400	—
204	320	—	384	386	390	—	—	—
305	309	305	356	359	366	366	370	—
400	396	394	358	357	362	360	357	—
309	318	333	341	344	319	338	356	—
281	277	290	323	317	325	324	341	...
247	265	283	298	293	303	314	328	—
—	—	—	—	299	—	—	—	—
315	304	307	299	297	296	281	277	274
—	—	—	—	(9) 248	—	—	—	261
250	256	253	249	246	242	238	233	—
196	194	187	197	206	207	208	216	—

(2) Excluding army horses. — (3) Horses used in agriculture. — (4) Including horses for sport in North territory. — (6) Unofficial assessment reproduced in official publications. — (7) Horses in rural communes. — (\*\*\*) Incomplete information excluding the 3 districts of the voivodia of Wilno and Upper-Silesia.

of conditions of horse-breeding in a given country and it is even more difficult to estimate the situation from the international stand point. It is not surprising that, in international literature, a complete work does not exist on the situation or horse-breeding as, even at the present time with few exceptions, the main source of power for agricultural purposes is still derived from animals and is the most important factor in the general economy of energy, the chief source of this energy being derived from horses. The development of horse-breeding and the number of horses therefore gives an interesting outlook on the economic conditions of farming and agricultural production in the different countries also on the utility of horses in this sphere. From this standpoint an attempt will now be made to give an idea of the development of horse-breeding throughout the world and the causes for this development.

Table I shows the development in countries where the number of horses exceeds 200 000, according to the last assessment. As in the majority of tables which compare the statistics of different countries, in this Table the figures are not always comparable in the strict sense of the term. The date of assessment is in general never the same in the different countries. Certain countries show the total number, others only a part (for example, only the number of horses employed in agriculture, or the assessments made for a certain region, etc). Unfortunately, in some countries, the assessments of horses have been made at such long intervals that they cannot be taken as a sure basis for giving an exact estimation of the development.

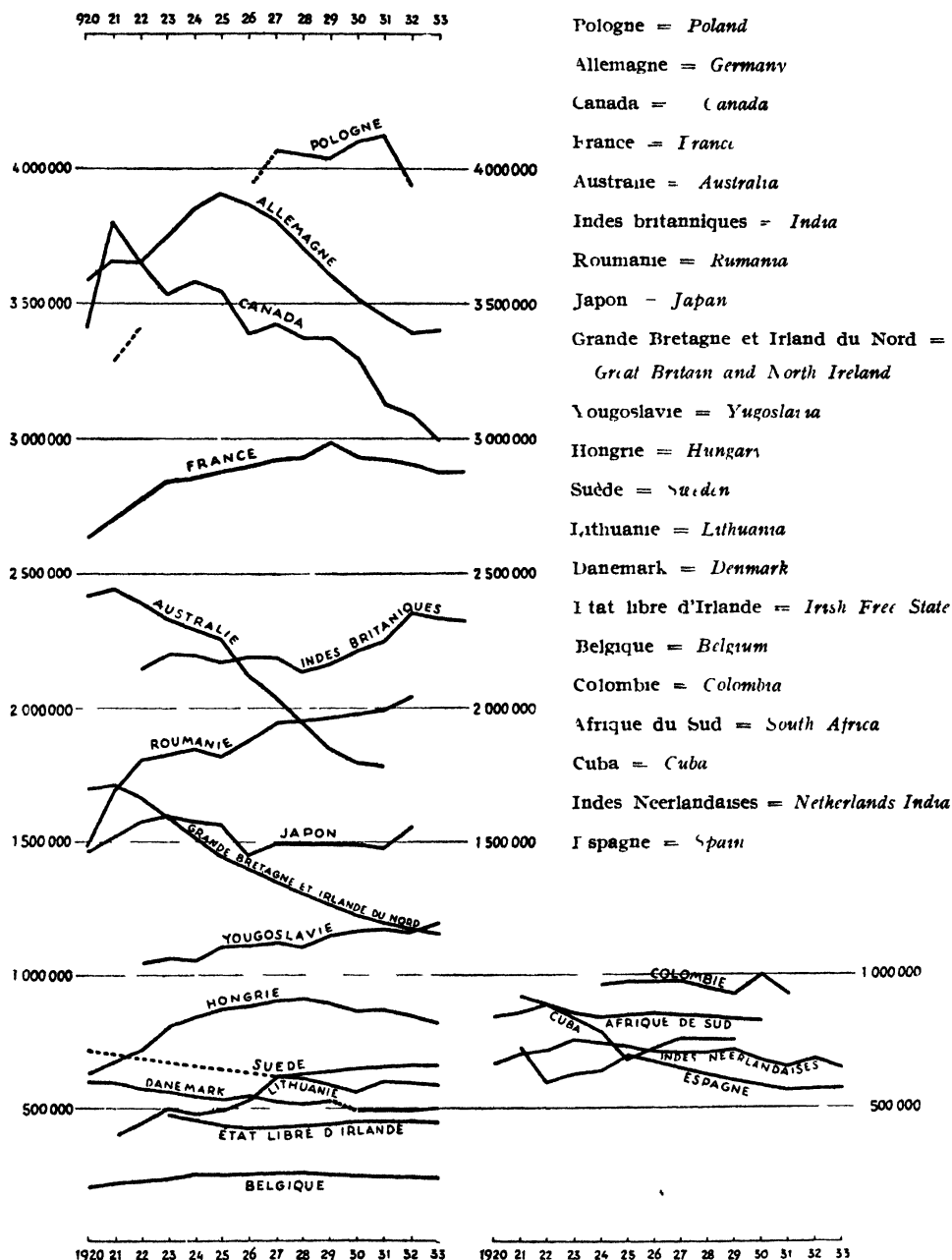
The figures in Table I are illustrated by the curves of graph 1. This graph shows the most important developments in the number of horses throughout the world in cases where a sufficient number of comparable figures are available, with the exception of the U. S. S. R., and the United States of America, countries in which the number of horses and the differences in the number of horses are so great compared with other countries, that they cannot be considered on the same scale.

On the other hand, information on these countries will be found in graph 2 which shows the development by relative figures taking 100 as the average and comparing the number of horses resulting from the assessment of 1933 (when data on this year are lacking the result of the last assessment made is taken).

As will be seen from the Table and graphs, the development differs from one country to another. In considering the tendencies of this development, however, the majority of the countries may be classified in groups according as this development is produced, more or less, in the same way.

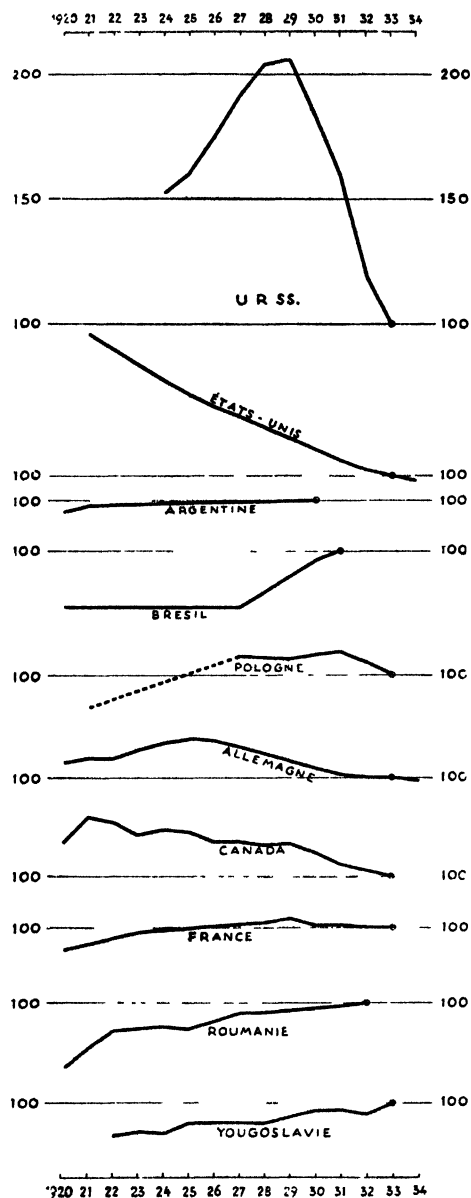
In certain cases (Japan, Latvia, etc.) the curve of development is too complicated, as it contains several maxima and minima, for it to be plotted. In Table II will be found valuable information by which the causes of development may be estimated. It shows that, even if the development differs according to countries, there exists, however, a fundamental similarity in some of the large groups showing that similar factors have been at work within these groups. Before considering in greater detail the development of the basic types of horses it appears to be advisable to compare their development in the

GRAPH I. — *Development in the number of Horses in the various countries*  
(Absolute figures)



GRAPH 2. — *Development in the number of Horses in the some countries*  
(Relatives figures).

The figures of 1933 or the latest census = 100.



U. R. R. S. = U. S. S. R.

États-Unis = United States

Argentine = Argentina

Bresil = Brazil

Pologne = Poland

Allemagne = Germany

Canada = Canada

France = France

Roumanie = Rumania

Yougoslavie = Yugoslavia

pre-war period with that in the post-war period. Data on these periods will be found in Table III. Unfortunately it has only be possible to consider countries in which the pre-war and post-war figures are comparable with each other or where the relative figures can be finally reduced to a common denominator, that is, in cases of territorial modifications the post-war figures are calculated according to the present territorial extension.

TABLE II. — *Development in the number of horses since 1920 up to the time of the last assessment.*

Basic Types	Countries
A. — Numbers which are increasing.	Ruman'a, Yugoslavia, Bulgaria (1), Greece. Argentina (1), Brazil (1), Uruguay (1), Chili (1), Peru (1), Bolivia, Haiti. Siam, the Philippines, India, Turkey (1), Morocco (French Zone)
B. — Numbers which have first increased and then decreased. The year in which the maximum was reached is in brackets	Poland (1931), Germany (1925), France (1929), Czechoslovakia (1930), Finland (1921), Lithuania (1927), Estonia (1927), Belgium (1927). U R S S. (1929), Netherlands India (1923)
C. — Numbers which have first diminished and then increased. The year in which the minimum was reached is in brackets.	Sweden (1927), the Irish Free State (1926), Denmark (1930), Norway (1930).
D. — Numbers decreasing	Italy (1), the Netherlands (1), Great Britain and North Ireland (2). The United States, Canada (2) Australia (2), New Zealand Manchuria (1), Union of South Africa (1)

(1) The available assessment figures do not allow a precise judgement of the development to be given.

(2) The numbers have only decreased since 1921.

The above groupings show that the number of horses has developed in the same way in countries with similar economic systems when their political economy has followed a parallel development.

Thus, for example, in Europe the numbers of horses in the Balkan States are the only ones which show a tendency towards a uniform increase. Although only scanty information on recent assessments is available which does not allow this development to be followed with precision, a continuous augmentation may be determined, however, in almost all the South American States.

This also applies to Haiti, Siam, the Philippine Islands and Morocco (French Zone). India may also be included on general lines, in spite of fairly wide variations. Unfortunately the present number of horses in countries in the first group can only in a few cases be compared with the pre-war number. The last assessment made in Uruguay, Bolivia and Siam show a greater number than before the war; those made in Brazil, Peru, and Chili show a decrease in numbers.

TABLE III. — *Comparison between the pre-war and post-war numbers of horses.*

Base-Types	Countries
A. — The number of horses according to the last assessment is greater than before the war.	Poland, Spain, Czechoslovakia, Sweden, The Netherlands, Belgium, Norway. Canada, Cuba. Haiti, Columbia, Uruguay, Bolivia. India, Netherlands India, the Philippines, Siam. Union of South Africa, Morocco (French Zone).
B. — The number of horses according to the last assessment is less than before the war.	Germany, France, Great Britain and North Ireland, Hungary, Italy, The Irish Free State, Finland. U. S. S. R., the United States Brazil, Chili, Peru, Japan, Turkey, Australia, New Zealand.
C. — The number of horses according to the last assessment is less than before the war, but has been greater, at least once, since 1925.	Germany, Hungary, Finland

With the exception of the Balkan States, almost all the European States which took part in the war belong to group 2. The number of horses increased in the first years after the war until they sooner or later reached a maximum after which they decreased continuously. Netherlands India and the U. S. S. R. also belong to this group. Compared to the pre-war figures, the figures given by the last assessments are higher only in Poland, Czechoslovakia, Belgium and Netherlands India. In all the other countries they are lower. It should not, however, be concluded from this that in all these countries the losses incurred in the war have not been replaced up to the present time. During the last ten years the figures in Germany, Hungary and Finland have been, at least once, higher than before the war. These figures have not however been maintained at the same level in subsequent years, certain circumstances, which will now be discussed, having brought about a diminution and reduced these figures to a level below that of the pre-war period.



In this group there are also countries in which the economic structure differs. In this case similarity of development has been caused by economic events which are the same for all these countries. After the war losses had to be made up and this intense activity of reconstruction exceeding its aim produced, for different reasons, a number of horses which has too large for the economic conditions during the following years. The difference in the economic structure of these countries appeared in the second phase of development; the diminution in the numbers is no longer as uniform and is brought about by very different circumstances, as will be seen later.

The Scandinavian countries belong to the 3rd group. During the war there was a considerable increase in the number of horses, but after the cessation of hostilities the demand for horses in these countries was less and the number decreased. It appears that this diminution was greater than circumstances required and a demand arose for a renewed increase. It is interesting to note that in Sweden and Norway the figures shown by the last assessment are higher than those before the war. On account of territorial modifications the pre-war and post-war figures for Denmark cannot be compared.

The curve of development is of a similar type for the Irish Free State, but in this case the number of horses, according to the last assessment, is less than before the war. The countries in which the number of horses has decreased since 1920-1921 belong to the last group. With the exception of Italy and the Netherlands, which have been included in this group though the results of the assessment which are available do not by themselves allow a precise judgement of the development to be arrived at, the countries belonging to this group are chiefly those in which not only the number of horses, but also agricultural production in general, has shown a similar development. For example, the great cereal producing regions over-seas which have increased in area during the last ten years, and where, contrary to what has occurred in the Argentine, an increasingly greater part of the motive power employed in agriculture is furnished by machines. It follows that the diminution in the number of horses is only of recent date and was dependent on two factors; the extension of the area under cultivation and the increase in the use of motors in New Zealand in 1911 (this extension was chiefly for purposes of diaring, not an extension of arable land), in the United States and Australia in 1918 and in Canada in 1921. It is interesting to note that the number of horses in Canada, according to the last assessment, is greater than before the war. In this country, the area under cultivation and the number of horses augmented to begin with, then, apparently after the increase in the use of motors, the number of horses diminished, but remained greater than before the war.

The development in the number of horses in Great Britain is very similar, but for different reasons. As will be seen later on, in this country the progress of mechanisation and the reduction in the area under cultivation were decisive factors in the development of the number of horses. During the war the losses in this country were not so great as in the other belligerent States with the result that the work of reconstruction after the war was not so intense as in the other countries.

In Table IV will be found the data on the numerical development in foals during the last few years. Unfortunately information on this question is only published in a few countries. As idea may thus be obtained as to the prospects offered to horse-breeders in the different countries and the future development in the number of horses.

TABLE IV. — *Number of horses under 3 years of age in the various countries.*

	1928	1929	1930	1931	1932	1933	1934
U. S. S. R . . . . .	9 215	9 640	9 371	6 704	3 458	2 440	
The United States . . . .	1 100	973	939	904	800	971	-
Poland . . . . .	676	567	557	521	518	413	
Germany . . . . .	462	409	400	387	393	406	460
Canada (3) . . . . .	295	302	312	-	285	266	
France . . . . .	588	640	574	561	547	528	-
Yugoslavia (4) . . . . .	195	191	186	193	185	192	
Hungary . . . . .	193	167	133	118	114	115	
Belgium . . . . .	103	100	98	97	95	91	91

(1) Horses up to the working age. — (2) assessment on 1 January of the year following that indicated in the heading. — (3) Horses under two years old. — (4) Foals (age not mentioned).

In accordance with the general reduction in the number of horses, the number of foals has also greatly diminished in the U. S. S. R. during recent years. The number of foals has also decreased in Poland, Canada and France. In Hungary the number also decreased since 1928, but remained fairly uniform in the years 1932 and 1933. In the United States the number varies. A decided increase is noticable in Germany.

In view of the great decrease in the number of foals during the last few years, it is foreseen that in a large number of countries and chiefly those where the number of horses are been greatly reduced (United States, Great Britain, Australia, etc.), there will be an increase in the demand during the coming years. The present price of horses, relatively fairly stable, seems to confirm this opinion (The resolution of the XVI International Congress of Agriculture expresses the same opinion).

Tables V and VI serve to complete the picture of the development in the number of horses. In them will be found the development in the number of mules and asses in countries where the number exceeds 200 000. According to this data, the number of mules, which is of more importance in this respect, tends to increase in Argentina, Bolivia, Algeria, Greece, the Union of South Africa and Morocco (French Zone). In the United States, France and Columbia the number increased and then diminished. Generally speaking it may be said that the tendency in the development in the number of mules and horses in these countries, with the exception of the Union of South Africa, has been similar although there

exist quantitative differences and the phases of development do not correspond. Thus, the number of horses in France reached a maximum in 1929, while the number of mules had already reached a maximum in 1924. The diminutions per cent are also greater for mules than for horses. In the United States, on the other hand, the number of mules increased up to 1924 (the number of horses had already been diminishing since 1918), but here the diminution per cent in the number of horses is greater than for mules.

## II. — CAUSES AND CONSEQUENCES OF THE DEVELOPMENT IN THE TOTAL NUMBER OF HORSES.

The numerical development in the total number of horses is the result of several circumstances. In grouping these circumstances, 2 groups of factors are obtained, one positive and favourable and the other negative.

### (1) Favourable factors (positive).

#### (a) *Causes related to the war and its aftermath:*

Replacing of the number of horses reduced during the war.

Inflation (« establishing true values »).

#### (b) *Causes related to technical progress (motorisation).*

Increasing use of machinery.

Increase in the general demand for energy.

#### (c) *Causes of a general economic nature related to the evolution of the agrarian policy:*

Agrarian reforms, increasing activity in internal land settlement (decrease in size of farms).

Extension of the arable area

Embargoes placed on the importation of horses (in importing countries).

Embargoes placed on the importation of fuels and motor engines.

Fall in prices of cereals and reduction in costs of up-keep of horses in general.

Decrease in prices of horses allowing them to compete more easily with motors.

Increasing reduction in the number of other draught animals (oxen) in farms.

Increase in the consumption of horse flesh.

### (2) Unfavourable factors (negative).

#### (a) *Causes related to the war and its aftermath:*

Liquidation of army horses after the war.

Decrease in the demand for the army.

Decrease in the remount.

Fall in prices for remounts.

TABLE V. — *Number of asses (1)*

Countries	1920	1921	1922	1923	1924	1925
1. — Brazil . . . . .	1,865	—	—	—	—	—
2. — Mexico . . . . .	—	—	—	—	—	—
3. — India:						
British Provinces . . .	1,373	1,371	1,368	1,380	1,379	1,411
Indian States . . . . .	—	—	—	—	—	—
4. — Iran . . . . .	—	—	—	—	—	—
5. — Spain . . . . .	—	1,138	1,014	1,033	1,038	1,071
6. — Italy . . . . .	(2) 949	—	—	—	—	—
7. — Turkey . . . . .	—	—	—	—	—	—
8. — Egypt (4) . . . . .	574	623	614	603	715	710
9. — Union of South Africa (5).	—	722	—	720	722	730
10. — Morocco (French Zone) (6).	—	420	449	483	536	503
11. — Haiti . . . . .	—	—	—	—	—	—
12. — U. S. S. R. (1) (7) . . . .	—	—	—	—	—	553
13. — Manchuria . . . . .	—	—	—	—	—	—
14. — Greece . . . . .	235	244	250	237	283	200
15. — Algeria . . . . .	224	246	233	267	291	282
16. — Anglo-Egyptian Sudan . .	—	—	—	—	—	200
17. — Columbia . . . . .	—	—	—	—	160	138
18. — Peru . . . . .	—	—	—	—	—	—
19. — Portugal . . . . .	—	—	—	—	—	211
20. — France . . . . .	298	296	291	284	280	27

(1) Including mules. — (2) Re-assessment of 1918 excluding invaded territory. — (3) Unofficial assessment of animals only. — (4) Number of taxed animals. — (5) Data exclusively relative to private peasant farms.

thousands) in various countries

1926	1927	1928	1929	1930	1931	1932	1933	1934
					(1) 2 790	—	—	—
				2 160	—	—		—
1 408	1 409	1 443	1 442	1 380	1 371	1 369		—
—				515	511	512	—	—
	—		—	—	95	1 197		—
			1 000			—	998	—
(3) 980		—		905	—		—	—
	1 096	831	845	801	883	908	899	—
131	750	762	759	763	741	795	753	762
755			—	700		—		—
565	508	457	541	576	577	611	677	—
170	210	240	340	350	400	600	650	—
561		—		—	—	—	—	—
				479	502	388	—	—
310	55	543	381	343	353	363	374	—
285	275	279	302	305	319	332	332	—
345	348	349	350	351	352	352	300	—
140	157	—	149	—	—	288	—	—
			265	—	—	—	—	—
			—			—	—	—
264	260	250	234	252	241	228	223	220

reproduced in official publications — (4) Excluding animals belonging to the British army — (5) Farms

TABLE VI. — *Numbers of mules (in thousands) in various countries.*

Countries	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
1. — United States . . . . .	5,772	5,827	5,895	5,908	5,918	5,903	5,801	3,647	5,496	5,366	5,226	5,120	5,036	4,925	4,795
2. — Spain . . . . .	—	1,295	1,069	1,100	1,110	1,286	—	—	—	1,154	—	1,175	—	1,190	—
3. — Argentina . . . . .	618	—	623	—	—	—	—	—	—	—	1,039	—	—	—	—
4. — Manchuria . . . . .	—	—	—	—	—	—	—	—	—	—	—	743	903	842	—
5. — Mexico . . . . .	—	—	—	—	—	—	—	—	—	—	751	—	—	—	—
6. — Italy . . . . .	497	—	—	—	—	—	520	—	—	—	457	—	—	—	—
7. — Columbia . . . . .	—	—	—	—	—	354	360	346	—	328	—	—	453	—	—
8. — Bolivia . . . . .	—	—	—	—	—	155	175	—	—	256	260	264	—	—	—

(1) Mules in farms and studs. — (2) Assessment of 1 January of the following year indicated at the head of the column. — (3) Mules and asses. — (4) Re-assessment of 1918, excluding the invaded territory. — (5) Unofficial assessment reproduced in official publications.

(b) *Causes related to technical progress (motorisation):*

Motorisation of transport, agriculture and the army.

(c) *Causes of a general economic nature related to the evolution of the agrarian policy.*

Reduction in the purchasing power of horse owners.

Rationalisation of farms.

Increase in the use of heavier horses.

Decrease in the pasture area following the extension of arable land.

Use of cows and oxen on plots established by the agrarian reform.

Decrease in the external trade in horses (in exporting countries).

Diminution, in certain countries, of interest in sports in which horses are required.

Forced collectivism in agriculture (U. S. S. R.).

The development in the various countries took place according to natural conditions, under the influence of the above mentioned factors in relation to their action in the different countries. As may be seen from the above enumeration of causes, the same factors often have a favourable or an unfavourable influence on the development in the number of horses and on horse-breeding. An analysis will now be given of the effect of different factors in this development on the number of horses.

# 1. — INFLUENCE OF THE WAR AND ITS AFTERMATH ON THE TOTAL NUMBER OF HORSES.

The war naturally increased the demand for army horses which was met not only by horse-breeding in the belligerent States, but also in neutral countries. Horse-breeding received a great impetus even in countries where the development of horses had remained more or less stationary or had even diminished before the war. The numerical information available for the war years is too scanty, too incomplete and not sufficiently comparable to be worth assembling in a general Table.

A few figures illustrate the war losses in horses (\*):

The French army, which in 1914, at the beginning of the war, had 175 000 horses and mules in France and North Africa, bought, during the first opera-

(\*) According to P. DIFFLOTH, *La Cría del Ganado y la Agricultura*, in the *Anales de la Sociedad Rural Argentina* 1931, No. 3, p. 157.

Colonel CHARPY gives figures which differ slightly from those of DIFFLOTH. (Present day questions of horse-breeding. — *Actes du XVI<sup>ème</sup> Congrès International Agriculture*, Budapest, 1934).

According to him, the French army required, in 1914 under peace conditions, a total number of 190 000 horses, 84 000 being saddle horse and 106 000 draught horses. In order to pass from a peace standard to a war standard, the army required in 1914 a requisition of 610 000 horses: 4 000 saddle horses and 569 000 draught horses, that is a total of 800 000 horses for war purposes had to be immediately provided by French horse-breeders when the army was mobilised

tions, 730 000 horses so that the total number of army horses, including 50 000 other animals which arrived from Algeria and Morocco at the end of a few weeks, amounted to 955 000. During the first 5 months 82 300 horses were already lost. Other purchases, chiefly from Canada and South America, replaced the losses and again increased the total number which in 1916 amounted to 1 763 000. Up to the end of the war, the army lost about 55 % of the total number of its horses.

The British army, at the time of mobilisation, possessed 204 000 horses which by 1915 had increased to 574 150. The war losses were 327 790, that is, 57 % of the total number of horses.

Germany, which at the outbreak of hostilities possessed 1 236 000 horses, lost 62 %.

According to SCHERBATOFF (ex-director of the studs in Imperial Russia), Russia needed 2 million horses during the war.

In certain countries (Hungary, Russia, Poland), the actual war losses were further increased by the troubles following immediately after the war (revolutions, foreign occupations, etc.).

These losses should not be considered solely from the quantitative point of view, but also from the qualitative, that is, from the view point of the technique of stock-breeding. Not only was a greater part of the best breeding material thus requisitioned, but also the destruction of private and State studs within the theatre of the war led to the disappearance of the results of an activity, often of very ancient origin, thus putting in danger the very existence of certain breeds.

With the return to normal conditions, an intense activity began to replace the losses, chiefly in countries which had taken part in the war. The reconstructive activity was all the more intense where losses had been greater ; in the victorious States these losses were replaced not only by national horse-breeding, but also by war indemnities resulting in different consequences. (1) The effort supplementary to the activity of horse-breeding in conquered countries where the total number did not increase in proportion to production. (2) Revival in the international horse trade (horses were bought abroad in order to meet requirements which could not be met by national horse-breeding). (3) Finally, an interesting consequence from the view point of the technique of horse-breeding : certain breeds appeared in regions where they were entirely, or almost entirely unknown and exercised a considerable influence on native horses (chiefly through stallions).

This increase during the period immediately following the war was still further favoured by other factors which, even if they were not direct consequences of the war, were, at the same time, part of the aftermath. Inflation, for example, resulted in an increase in production as many breeders wished to protect themselves, by "true values", from the results of the de-valuing of money. The autarchic tendencies which brought about agrarian reforms beginning at this epoch and which will be considered later, also may be considered, to a certain extent, as a result of the war and also a favourable factor in this augmentation, there being an increase in production and a certain



renewal in economy. The increase in the number of horses following the extension of the arable areas in countries over-seas (also a result of the war) and made itself felt, even during the war.

On the other hand, we may consider as factors unfavourable to production the sale by armies of their horses, and motors engines or automobiles, which were too numerous and now superfluous, also the diminution in the demand for the remount in the following years. If the armies greatly reduced their demand after the war, it was partly on account of the increase in motorisation and partly on account of the reduction in mounted troops; this was even more noticeable in countries obliged by the peace treaties to reduce their armies.

The States which remained neutral during the war found themselves in another situation. The increase in their activity in agricultural production, the increase in the demand for horses and in the production of horses, which after the war was adapted to the foreign demand resulted in a too great number of horses being produced which exceeded the internal demand after the war and therefore had to be reduced. In addition, the marketing of their horses abroad became very difficult on account of the competition from certain States which had taken part in the war and also because their currency remained almost entirely stable at a time when the greater part of their competitors and buyers had devalued their currency considerably.

As has already been said, in the first years following the war the number of horses tended to increase almost everywhere, a proof that the positive and favourable factors were stronger than the negative unfavourable factors, which for reasons mentioned above had an influence on only a few countries such as the States which remained neutral during the war (Sweden, Norway, The Netherlands, Denmark, etc.), those still suffering from the troubles of the war (Turkey) and those where the tendency to increase had already ceased for other reasons which will be discussed later on (United States, New Zealand, Australia).

Graphs 1 and 2 give a clear idea of the intensity with which the number of horses increased during this period. Naturally this increase could only take place at the expense of quality (1), the produce of good mares having been diminished by the war, many breeders tried to profit by the situation and thus mated animals without judgement. It is therefore not extraordinary that there was soon a veritable inflation in horses and production soon surpassed the true demand. The effects of other factors also made themselves felt which, following the difference between the pre-war and the post-war economy, manifested themselves in a smaller demand for horses than before the war and rendered the number of horses already existing excessive.

The rapid rise of the curve of development and its length, that is, the period during which the number of horses increased, allows a interesting comparison to be made between the intensity of the favourable factors in different countries. Among these factors, the war and post-war influences had a preponderating effect on horse-breeding in the first years after the war.

(1) The figures in brackets refer to the *Bibliographical Notes*, p. 391-392.

2. — INFLUENCE OF TECHNICAL PROGRESS (MOTORISATION)  
ON THE TOTAL NUMBER OF HORSES.

The motorisation of traction is not, in principle, a new process. Since the middle of 19th century, railways have replaced draught animals to a great extent as shown by statistics of countries which at that time possessed numerical data on their animals. The general development in technique, however, also had the effect of reducing the number of draught animals by replacing animal power by other forms of motive power (steam, combustion and electric engines) and, on the other hand, diminishing the kinetic energy necessary by improving vehicles and machines. The importance of draught animals as a source of energy was relatively greatly reduced in modern economy and was limited to estates where, from the technical standpoint, conditions were more favourable for animal power than for machines. That this retrograde movement did not have a greater effect on the number of animals, that is, an absolute diminution that was very small or nil and in some cases an increase, is due to the fact that the demand for energy had increased according to the activity of modern economy.

The development took place in several directions: the quantitative demand for energy was increased; the supply of energy in general was modified by the introduction of new sources of power; and, in modifying the importance of these sources of energy, it changed the general structure of energy in agriculture. This development is still taking place today and is dependant on economic factors and, to a greater extent, on the development of technique which continually produces new machines and thus modifies the earning capacity of one or other of these sources of energy. As has already been said, the production of steam engines (railways) resulted in a reduction in the demand for draught animals. It results, however, from statistical researches that after a fairly long period of diminution, or at least of stagnation, the number of draught animals began to increase towards the end of the 19th century and the beginning of the 20th. The introduction of numerous machines into agriculture reduced the necessity for human labour and increased the consumption of animal energy, that is, the importance of these two sources of energy had been considerably modified. The problem, as it is presented today, depends to a large extent on the success of the combustion engine which even before the war, and to a greater extent after the war, revolutionised the technique of transport and agriculture. The question has often been examined in detail from the point of view of national and private economy (in this case the two points of view are not parallel) and also from the standpoint of agriculture. This question which is interesting for other reasons from the viewpoint of horse-breeding is: up to what degree can the motor replace the horse and what are the future aspects of the problem?

The replacing of horses by machines will always be a question of economic importance. What is of most importance is local conditions which cannot be taken into account here. The comparative analysis of costs must also be omitted which naturally only apply to determined cases. The question can only be considered on general and fundamental lines and must be limited to examining

the possibility of replacing the horse by the motor (automobiles, tractors, etc.) in its three principal uses (transport, agriculture, the army).

A survey will now be given, based on literature relative to this question, of the respective technical advantages and disadvantages, in the use of horses and machines.

#### *Advantages of horses.*

The cost price is lower — the feeding costs (up-keep) is proportional to the price of agricultural products — animals no longer of use for work can be sold to the butcher — no specialised attendant is required — the harness etc. can also be for more than one horse — roads and weather conditions (snow, etc.) are of far less importance — no workshop is required for repairs — the value of a draught horse increases up to a certain age — horses multiply and thus decrease the cost of equipment — there are great reserves of power which can be put forth in special circumstances — feeding costs are hardly affected by the power supplied while they increase progressively for the tractor — feed for the horse is produced on the farm itself — the horse may be used for various purposes — the horse is itself an agricultural product — it is more adaptable to the land than the tractor — it provides manure.

#### *Disadvantages of horses.*

They require care and food in periods of rest (feeding costs may be reduced by grazing) — they cannot carry out heavy work except for a limited space of time — they require relatively long periods of rest — they work less well in periods of great heat — their speed is diminished by work — they require a relatively long space of time for feeding, for their attention and for harnessing — much space is needed for stables and storing their feed — complicated harness is required for working large numbers together at the same time — a fairly large part of the harvest is consumed by them — power does not increase in proportion to the number of animals harnessed together (RINGELMANN test) — they are liable to diseases.

#### *Advantages of machines.*

Greater speed which can be adapted to various kind of work — can be used both for traction and propulsion — can be used continuously and intensively for heavy work (day and night work) — they do not suffer from the weather — they can function in a stationary position or as tractors — they can provide much power for varied purposes in a short time — they are always ready for use — they require hardly any care, food or rest — they save labour for men — on account of the rapidity of their work they allow all work of an agricultural nature to be carried to at a suitable time (this is important, chiefly in tropical and sub-tropical regions) — they are almost the only source of power for certain types of work (for example, harvester-threshing machines).

*Disadvantages of machines.*

They can only be used within certain limits — they work with difficulty on soft or saturated soils — they cannot be used for all farm work — they require special knowledge — they cannot always work economically as they cannot always be adapted to providing the energy required — they compress the earth (a great disadvantage in light work) — a breakdown in the middle of a working period may seriously hinder or arrest the work being carried out at the right time — there are difficulties in procuring spare parts.

This short comparison, far from being complete, shows, however, that there are regions where motors are superior and others where horses are more suitable. It must be decided, case by case, whether the horse or the machine gives the best results, but this competition is itself subject to modifications. It is influenced by several factors: first of all by technical progress, chiefly by the improvement in tractors, also by the variations in prices which were very pronounced during the last few years and which had a great effect in the development of machinery, finally, by the tendency for farms to become larger or smaller.

The machine has proved to be an active competitor with the horse for transport purposes and chiefly in town traffic, resulting in a notable reduction in the number of horses in towns, infinitely greater than in country places, and an increasing augmentation in the percentage of horses in rural districts. A few examples will suffice. In the United States the number of horses and mules in the towns have undergone the following modifications

Years	Horse (in thousands)	Mules (in thousands)
1910	3 181	270
1920	1 704	578
1930	300	75

In Germany (2) the number of horses has developed as follows

Years	Number of horses in % of the total	
	in farms	elsewhere
1907	80	20
1925	90	10
1933	95	5

In Switzerland (3) the percentage of farm horses also increased as shown by the following figures:

Years	1901	1906	1911	1916	1921	1926	1931
Number of farm horses in % of the total . . . . .	76.5	77.1	75.7	78.5	84.5	83.6	86.0

In the countries considered up to the present the number of horses has generally diminished. This is not the case in Rumania, but even in this country the number of horses in towns has decreased (4) as shown below :

Years	Number in towns (in thousands)	Number in rural localities (in thousands)
1921 . . . . .	121	1 564
1929 . . . . .	91	1 867

A great number of examples of the same kind might be cited if necessary. It would be superfluous to enumerate the well-known causes of this development also the advantages of the automobile over the horse with regard to transport. On the other hand we will briefly describe the cases in which horse transport is superior. Bad road conditions — hard winters with much snow — places where cheapness is of more importance than speed — when much time is required for loading and unloading — when many stops are necessary during transport — in rough country — for short distances, etc.

The diminution in the number of horses has been relatively greater in large towns than in small. DARLY (5), is however of the opinion that even in large towns the horse is often superior to the motor.

Reduced to a minimum, the number of horses in large towns no longer decreases greatly (6). The variations in prices during the last few years have in any case augmented the earning capacity of horse transport in relation to the preceeding period. Thus DARLY estimates the following variations in costs of transport in Paris for the years 1932-1934 :

*Horse transport :*

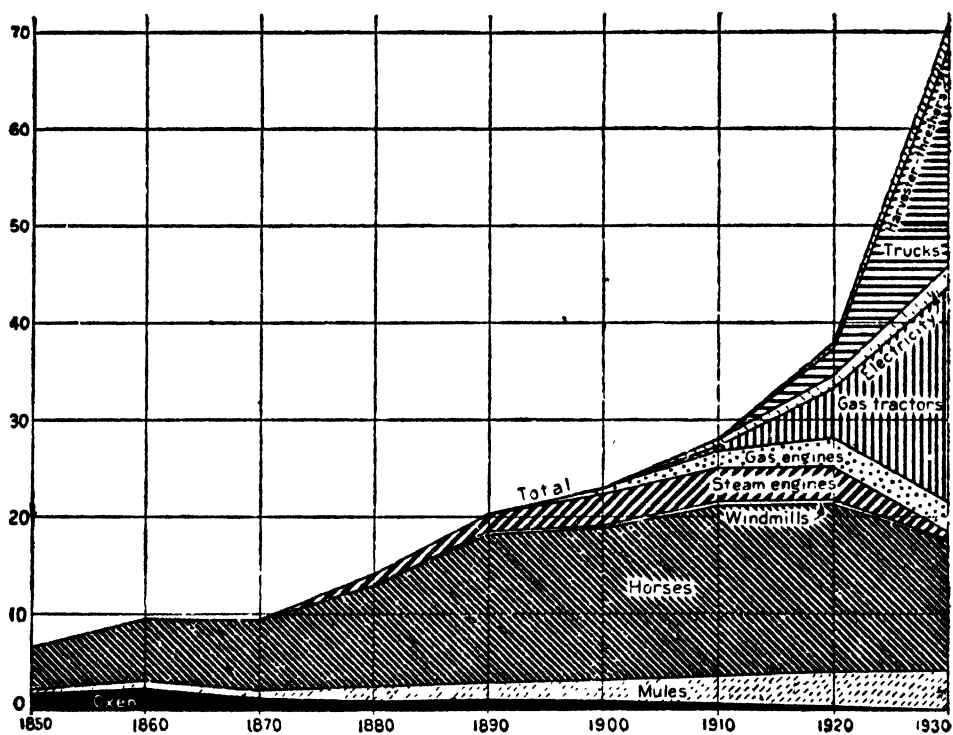
The costs decrease by 10.5 % for a one horse waggon ;  
 " " " " 15.3 % " two " "  
 " " " " 18.1 % " three " "

*Motor transport :*

The costs increase by 4 % for a two ton waggon ;  
 " " " " 6 % " four " "

The variations in these costs have naturally been greater in strictly agricultural countries and have often been increased still further by taxes and duties on motors and fuels. It is, therefore, not astonishing that in these countries horse vehicles constitute a competitor with motors and the railways, even for long distances, to such a degree that attempts are made to restrain this competition within certain limits.

GRAPH 3. — *Development of different sources of Agricultural motive power in the United States.*



One must, however, be beware of regarding this new advance in horse traction as a sign of normal development. The annual report of the Hungarian National Chamber of Agriculture justly states that "Doubtless the new pre-eminence of horse transport is not a sign of a healthy development. In our opinion it may only be considered as a consequence of the very difficult conditions of the present time. Owing to the fall in the prices of agricultural products, expenditure on the necessary means of rapid transport is not possible and the loss of time due to slow transport on the roads must be tolerated. It is the same phenomenon which had led to oxen instead of tractors being harnessed to the plough" (7).

The preceding Tables, which show the distribution of the total number of horses among towns and rural districts, allow a double conclusion to be drawn: the motor has driven the horse from the towns and the percentage of horses employed in agriculture continuously increases in proportion. The number of horses in towns has diminished to a greater extent than has the total number (in certain countries the total has even increased) and from this the conclusion can be drawn that the motor has replaced the horse to a greater extent than has the tractor. We do not, however, wish to belittle the great importance of the tractor which has revolutionised the technique of agriculture; on the contrary, we must emphasise the fact that, in addition to plant selection, it is the tractor that has played the most important part in the rapid and extensive development in agriculture during and after the war, a development that has never been equalled in the history of economy. The rapid extension in the use of tractors also shows the great advantages of mechanical traction. On the other hand the development in the number of horses shows that the tractor cannot completely replace the horse on the farm. In the majority of cases it amounts to a partial replacement in that the work is carried out by both the horse and the tractor. It must not be forgotten that the tractor is a competitor not only with horses, but also with other animals (oxen) and agricultural machines (chiefly steam ploughs) which have been replaced by tractors far more than horses have been. This may be seen from Fig. 3 which shows the development of different sources of agricultural motive power in the United States.

The data resulting from the re-assessment of farms in Germany show a similar development: during the period 1925-1933 the following changes were determined in farming as indicated in Table VII.

TABLE VII. — *Development of various sources of energy in Germany from 1925 to 1933.*

	1925 in millions	1933 in millions	Increase (+) or decrease (—) in %
Number of farm horses . . . . .	3 5	3 2	— 8 3
Number of horses for other purposes . . . . .	0 7	0 46	— 56.5
Draught oxen . . . . .	—	—	30 0
Tractors and motor ploughs . . . . .	11,897	24,118	+ 102.6
Mills . . . . .	477,192	240,510	— 49 6
Camions . . . . .	41,663	10,577	+ 53 0 0
Steam ploughs. . . . .	1,068	0,994	— 1 4

Even if it is admitted that the United States are exceptional with regard to the rapid progress of motorisation, it must, however, be pointed out that this development, at least in broad outlines, is found in the majority of countries although to a lesser extent numerically speaking. The differences are less noticable in the manner of replacing motor power in agriculture than in the

numerical differences in the sources of energy. Unfortunately statistics on this subject have only been assembled in very few countries without which the extent to which motors have replaced horses cannot be accurately determined nor under what conditions this has taken place. As these data do not exist, we must have recourse to the fairly abundant literature on the subject, only a small part of which, however, is truly impartial and based on documented information. The judgement founded on investigations carried out up to the present cannot be considered definitive as the period from the introduction of tractors (about 1920) up to today is far too short and, added to that, this period has included so many economic crises that the development could not take place in the way which natural circumstances justified. The insufficiency of concentrated food stuffs during and after the war as well as the lack of draught animals contributed towards the rapid increase in the use of tractors. In many countries the trade in tractors was subsidised by the State and benefited by the publicity and excellent sales organisations of the industries which also contributed towards accelerating mechanisation. A reaction could not fail to take place; in many cases the tractors were put aside and farming was continued with draught animals. Similar phenomena may be observed everywhere, but their importance should not be exaggerated. All natural developments undergo variations and one should beware of forming judgements from the extremes of variation.

Consequently, only an approximate idea may be obtained of the geographical distribution of tractors owing to the said insufficiency of statistical information. The countries where the greatest number of tractors are found are probably the United States (920 000 in 1933) and Canada (105 210 in 1931) and it is also in these countries that the number of tractors has increased most rapidly. In the U. S. S. R. there are a great number of tractors which is increasing rapidly (about 35 000 in 1929 and 281 000 in 1934) (9) and, according to GLADKOV, in spite of their marked insufficiency, their use is 3.4 times greater than in the United States (in the U. S. S. R. an area of 80 000 000 hectares are worked with tractors and in the United States an area of 66 000 000 hectares). Tractors are used less in Australia than in Europe. (Germany possessed 24 100 tractors and motor ploughs in 1933; Italy 23 600 in 1931; Hungary 3700 in 1930 of which about 300 function; Rumania 4 000 in 1930). No statistical information is available on the South American States, but according to the statistics of external trade, it may be judged that the number of tractors is relatively small, even in Argentina.

What then are the factors causing these differences in the diffusion of mechanical traction in various countries and what are the factors which result in a preference for mechanical rather than animal power?

JASNY (10) has analysed this problem in detail and has arrived at the conclusion that it is in regions where there is extensive cultivation of cereals, flax-seed, soya, etc., in the large farms in the semi-arid steppes, that the greatest number of horses may be replaced by tractors of certain dimensions.

On the other hand, tractors of the same dimensions can only replace a relatively small number of horses where cultivation is mixed and intensive and where



there is a large production of farm manure. The results are most favourable almost exclusively where the large farms for intensive cultivation utilise tractors as a source of energy in periods of intensive work and chiefly for heavy work.

The distribution of work throughout the year has, in fact, a important influence. When traction power can be utilised during almost the whole year, horses are most valuable; in farms where the work is concentrated into a few short periods and traction power is only required at intervals, tractors are more suitable. This is also the case when not much work is necessary or the tractor can only replace a few horses and when the necessary transport is executed by camion.

The possibilities for utilising traction power are least in semi-arid continental regions where the winters are long and where only cereals, and chiefly wheat, are grown during the summer. These possibilities are increased, but only to a small extent, in regions where winter wheat may be grown, but not root crops on account of the insufficiency of rainfall. This also applies to farms where a single form of cultivation is indicated for economic reasons.

If the climate permits the cultivation of roots and a crop-rotation with cereals and other plants is required, the possibilities for utilising traction power are, usually, much greater and, in places where wages are low and the climate is mild, amounts practically to continuous use throughout the year. Complete mechanisation of traction, however, rarely gives the best yield where the possibilities of utilising traction power are great. It often happens, however, that horses can only be used to a very small extent, even when the general possibilities for their use are great.

In these cases the tractor renders great service in periods of intensive work.

The size of the farm also has a great influence on the introduction of tractors. This factor is decisive when it is a question of replacing horses by motors and chiefly in European farms. The estimates made by German experts on this subject are important not only with regard to conditions in Germany, but also, in view of the present situation, for conditions in Europe in general.

Thus BRINKMANN (II) estimates, taking the number and average size of farms in Germany as a basis, that the « Capacity for absorbing tractors by agriculture in Germany is about 50 000 tractors ». According to experts these 50 000 tractors could replace, under favourable conditions, from 175 000 to 200 000 horses. For reasons of security, farming and distribution of work throughout the seasons, the replacement of horses will in reality always be below the theoretical equivalent of work. It must also be added that in many cases the tractor does not replace the horse, but rather oxen and steam ploughs. If it is estimated that, on an average, a tractor can replace 2 horses a total of 125 000 to 150 000 horses is arrived at, including their progeny. These animals which are replaced by motors represent from 4 to 4 ½ % of the total number of farm horses in Germany in 1925. The true development is far below this estimate. Instead of 50 000 motors, statistics only show 15 859 tractors chiefly employed in agriculture and forestry.

«In any case a considerable reduction in the number of horses will not take place as the *result of motorisation*.

« The tractor cannot be used economically in small and medium sized farms which occupy  $\frac{2}{3}$  of the cultivated area in Germany. Even in the large farms it can only replace a small part of the total traction power which is employed for exceptional work in periods of pressure of work and which, for this reason, cannot be utilised completely. The tractor serves to complete rather than to transform farming. The diminution in farm horses observed in the last few years is by no means due solely to the influence of motorisation ».

This last observation may also be applied everywhere, with few exceptions. The tractor has replaced, up to the present time, far fewer horses than is generally believed. Its use has increased to the greatest extent in regions over-seas to which the above mentioned definitions of JASNY apply, but even there it has only an indirect influence. Instead of replacing horses, tractors have rather made farming possible which does not require animal labour. This chiefly applies to regions where it is difficult to produce forage on account of natural conditions and where agriculture can only develop with great difficulty because of the lack of labour. The great advantage of the tractor for the farmers in these regions is that it makes him independent of these factors; on the other hand, the use of the tractor chiefly depends on the intelligence of the available labourers and on the extent to which they can be instructed. Many failures due to these circumstances have been observed in regions where conditions were theoretically favourable.

The tractor has not replaced the horse even in Russia where a rapid development in agriculture was expected from mechanisation, and it has been admitted that the promise « to mount the peasant on a steel horse » has proved to be a delusion and that the mechanisation of agriculture has by no means rendered the horse superfluous (12).

To quote the newspaper *Pravda* (No. 54, 1934). " Only a subversive element or a fool could pretend to the contrary ". Even if mechanisation was carried to a maximum and agriculture was saturated with tractors and automobiles, the horse would still retain its value as it is the horse which carries out the lightest work even in highly mechanised agriculture. The function of the tractor is to execute heavy and complicated work.

Analagous opinions are held in other countries.

The report of the Director of Agriculture of South Australia (13) draws attention to the great reduction in the number of horses in spite of the increase in the area cultivated. While in 1920-1921 there was estimated 1 horse per 12 acres of arable land, in 1930-1931 there was only 1 per 29.6 acres. It is true that tractors have replaced horses to a large extent. If it is estimated that 1 tractor replaces 12 horses, the number of horses should increase by 44 760, that is, it should increase to a total of 228 289 which gives 1 horse per 23.8 acres (It will be seen that even here the diminution in the number of horses is not exclusively due to the progress of mechanisation).

« Unfortunately, the recent craze for Farm Tractors has had the effect of discouraging horse-breeding in the State, and to-day, when they are most needed, good draughts cannot be secured, except at almost prohibitive prices. And it is clear that the demand for them will increase very considerably within the next few years, when the majority of tractor-owners will be in the market for horses,

and when horse farmers who have given up breeding seek to replace their worn-out teams. Hence, in my opinion, one of the main problems before farmers will be how to maintain production at its present level in the absence of a sufficiency of draught horses. It is fairly obvious that all costs of production must be maintained at a minimum, which should put out of count any extension of the use of tractors ».

We must add a few remarks on the *influence of mechanisation of the army on the rôle of the army horse*. Under the influence of trench warfare, such as took place during the world war, a reduction in cavalry began after the war, but here too there were certain reactions. The new military inventions made it doubtful whether the next war would resemble the world war. The cavalry still has certain important functions: reconnaissances in wooded country where conditions are more favourable for cavalry than for aeroplanes. The horse can also find his way better than the aeroplane in the dark. In cases of pursuit of a retreating enemy the cavalry is more independent of roads and the conformation of land than mechanised troops, and, in addition, it can be used alone or in conjunction with other troops. Although many circumstances are unfavourable to mounted troops (gas attacks) cavalry should however be retained though in reduced numbers (14), and a demand for horses may be counted on even if to a less extent than before. This also applies perhaps to a greater extent to the artillery and army train. In spite of the great advantages of mechanisation for these corps, it can never be completely attained. The whole mobility of the army would be risked, the quantity of fuel required would be enormous and armies would be dependent on their zones of production not to mention the inherent difficulties of revictualling.

The army and above all the artillery can only be mechanised in entirely industrial countries which, in case of war, would be able to continuously replace material destroyed or deteriorated. The state of the roads is of primary importance also the supply of fuel and the degree of instruction of the population as, with a mechanised army, it would be necessary to be able to count on a sufficient number of recruits possessing certain indispensable technical knowledge. The budget of the army is also an important factor as the creation and functioning of mechanised units costs much more than units using animal traction especially when one realises that mechanised units become out of date according to the appearance of new inventions and thus have to be renewed. When horses are lost the loss is generally less than with motors, in fact, thanks to the horses in the country the army possesses a reserve that costs it nothing in times of peace.

The advantages of the horse are that he can bear strain much better than a motor, he can adapt himself more easily to adverse conditions, and is less dependent on food and the method of feeding than the motor is on the fuel supply. At the time of mobilisation it is easier to complete the units utilising horses by requisitioned animals than it is to complete motorised units by tractors or other motor vehicles which often have to be specially adapted or transformed. The army should possess reserves of the necessary motors even in times of peace and in this way a large amount of capital is locked up.

The principal advantage of motors is speed, but this can only be utilised in certain conditions (good roads, certain and rapid supply of fuel and spare parts, etc.). Motors are at present indispensable to the army, but they cannot render the use of draught animals superfluous, chiefly for the artillery and army train, as is shown by the experience of the Italian army which suffered most from a lack of horses during the war. The same result was demonstrated in various manoeuvres during the last few years (the Rumanian manoeuvres carried out in the presence of the King near Sigishoara, 1931; etc.) (15, 16).

With regard to this question it is interesting to note the communication presented by Colonel GUILLET to the Horse-breeding Section of the Société des Agriculteurs of France (17), based on information received from Japanese sources describing recent experiences of the Japanese army in Manchuria. It appears that the number of horses in the Japanese army, which had been 10 000, was obliged to be increased in a very short time to 50 000 at a time when the number of troops was hardly double that figure.

### 3. — INFLUENCE OF THE ECONOMIC DEVELOPMENT AND THE AGRARIAN POLICY ON THE TOTAL NUMBER OF HORSES.

It is almost impossible to under-estimate the influence of the post-war economic development and the effect of recent evolutions in agrarian policy on horse-breeding. To begin with, the factors which have been discussed up to the present (war and post-war effects and the influence of motorisation) are linked so closely to economic development that, as has been seen, it is impossible to separate them. In the second place the economic development is the result of so many factors differing from one country to another that it is not possible to speak of a uniform and continuous influence. The circumstances are similar with regard to agrarian policy which also naturally differs in different countries and produces different effects. It would take too long and would only obscure the general outlook to examine all the factors of economic development and all the measures of agrarian policy in their effects on the development of horse-breeding. We must confine ourselves to selecting a few which have had principally local influence, but which are important in their effect on the general development of horse breeding throughout the world.

If the general development of agriculture is first considered in its relation to the development of horse-breeding, one of the chief transformations noticeable is the *change in cultivated areas* after the war in relation to those before the war. The influence on the use of horses is very noticeable; the extension of cultivated land resulted in an increase in the production of horses, especially in overseas countries, if the tractor, for which conditions in these countries were particularly favourable, did not prevent or retard it. The co-efficient of the number of horses relative to the increase in cultivated areas was proportional to the possibilities of using agricultural machines dependant on economic and other conditions.

This report is documented in an interesting way by the co-efficients in Table VIII indicating the number of horses per 1000 hectares of cultivated land in various countries.

For the pre-war period the figures concerning Germany and France refer to pre-war territories (for Germany they refer to the year 1913); the post-war figures refer to existing territories (the territory of the Sarre is not included in Germany).

Table VIII shows a diminution in horses per units of cultivated area, maximum in Australia and minimum in France where not only the number of horses diminished, but also the cultivated area.

TABLE VIII. — *Number of horses per 1000 hectares of cultivated land in various countries.*

Countries	1911	1933
Canada . . . . .	13.2	12.6
United States . . . . .	19.5	8.9
Argentina . . . . .	47.0	38.0
Australia . . . . .	37.5	13.4
Germany . . . . .	17.7	16.4
France . . . . .	13.5	13.3

The relatively large number of horses in Argentina may also be noticed. In this country horses were still of great importance on account of the type of farming, natural condition, etc. Motorisation has not made the same progress there as in the other great cereal producing zones over-seas. The diminution of the co-efficient is small in Canada, but the number of horses per unit of area of improved land had already been modified. On 100 acres of improved land there were: 5.23 horses in 1901; 5.33 in 1911; 5.12 in 1931. The number of horses decreased greatly in the prairies which were more adapted to mechanical traction: the number of horses per farm was reduced by 1.6 units from 1921 to 1931, while for Canada as a whole it was only reduced by 0.42 units.

In the prairies 1 horse per 29 acres was estimated in 1931 as against 1 horse per 20 acres in 1921.

Table IX shows clearly the relations between the changes in areas cultivated and the number of horses in England from 1912 to 1933.

TABLE IX. — *Changes in areas cultivated and the number of horses in Great Britain from 1912 to 1933.*

Year	Areas in millions of acres			Horses (in thousands)
	Area cultivated	Cereals	Sown meadows and grass-land	
1912 . . . . .	14.7	6.6	17.3	1 441
1928 . . . . .	15.8	8.3	15.9	1 585
1920 . . . . .	15.4	7.1	15.8	1 580
1933 . . . . .	12.3	4.7	17.4	1 052

From this Table it will be seen that the increase and decrease in the arable area, in the area cultivated in cereals and in the number of horses followed a parallel course. These values reached their maximum in 1918, following the economic situation created during the war, and afterwards decreased.

In addition to the distribution of the land cultivated, the *rationalisation of farming* plays an important part parallel to the crisis which obliged the greatest possible reduction be made in the costs of farming; finally, with the intensification of agriculture, an attempt was made to make better use of the animal energy available, above all by better methods of equipment (18), by utilising improved implements in order to economise power (agricultural mechanical vehicles), and by working the animals up to a more advanced age. Farmers also tried to obtain the necessary motive power by means of a smaller number of heavy horses. These efforts had a great effect, chiefly in countries where horses are stall-fed all the year round or where pasturage for cattle was not extensive, as in these cases only a few animals should be kept in order to reduce feeding costs and also the costs for the labour necessary for the care of the animals is distributed over a larger co-efficient of work.

Another result of the tendency to rationalise agriculture is that many farms, chiefly the smallest, disposed of their horses as the cost of their upkeep could not be in proportion to their yield without increasing the extension of the farm.

Other draught animals, such as mules and oxen, were often replaced by horses following the intensification of farming. Table X, shows the development of the number of oxen in certain countries. Unfortunately the statistics do not distinguish between draught oxen and cattle for fattening which prevents an accurate estimate being made. This Table, however, shows that the number of oxen is decreasing which is, very probably, not entirely dependent on the conditions of the meat market which are less favourable, chiefly for countries exporting meat. The conditions of sale of fat cattle also influences the use of oxen as draught animals, as generally draught oxen which have become useless for this purpose are then fattened. The number of oxen decreased chiefly in the largest farms where conditions are more suitable for motorisation. This principally applies to Europe. It is also interesting to note that the number of oxen decreases, not only in countries which export meat, but also in importing countries.

Unfortunately the influence of these tendencies to rationalise farming cannot be expressed in figures owing to the lack of the necessary statistics, but it is clearly shown by literature on the subject, and the commentaries to statistical information on the number of cattle emphasise, in the majority of cases, the rationalisation of farming and the improvement in the quality of the cattle as being one of the most important causes of the diminution in numbers. This has doubtless been contributed to by the crisis in farming during the last few years and above all by the cereal crisis that, *inter alia*, favoured the keeping of horses which, being less costly to maintain, became a more serious competitor with motors. On the other hand, the material condition of farmers, adversely effected by the crisis, had an unfavourable influence on the horse market as, as has already been seen, the greater and increasing part of the total number

TABLE X. — *Number of oxen (in thousands) in various countries.*

Countries	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
U. S. S. R. (1) . . . . .	—	—	—	—	—	5 138	4 601	4 355	...	...	...	...
France (1) . . . . .	1 391	1 402	1 429	1 426	1 444	1 441	1 318	1 362	1 389	1 374	1 362	...
Rumania (1) . . . . .	1 420	1 494	1 460	1 352	1 300	1 254	1 191	1 044	993	994	...	...
Yugoslavia (1) . . . . .	—	—	—	—	—	878	882	875	889	882	893	—
Germany $\left\{ \begin{array}{l} (5) \\ (6) \end{array} \right.$ . . . . .	1 011	1 039	874	793	789	789	743	761	767	866	878	—
Italy (1) . . . . .	7 1156	—	—	—	—	—	—	—	—	371	383	—
Bulgaria (3) . . . . .	6) 646	—	—	683	—	—	—	871	—	—	—	—
Greece (3) . . . . .	270	...	356	368	362	362	...	354	35	352	355	—
Czechoslovakia (1) . . . . .	6) 570	—	513	—	—	—	—	366	353	—	346	315
Hungary (1) . . . . .	—	313	294	274	262	246	227	208	189	175	173	—
Austria (1) . . . . .	210	—	—	—	—	—	—	126	—	—	—	—
Poland (4) . . . . .	—	—	—	—	140	125	120	124	98	95	87	—
Belgium (3) . . . . .	25	22	21	22	21	20	20	18	18	16	19	—

(1) Oxen. — (2) Bulls and draught oxen. — (3) Draught oxen. — (4) Oxen 3 years old and under. — (5) Total number of bulls and oxen 2 years old and under. — (6) 1920. — (7) 1918.

of horses are in the hands of farmers. It is even feared that the quality of horses is in danger as it has been remarked that breeders have often been obliged to sell their best animals as draught horses and to keep the least valuable for breeding purposes.

Among the innovations in post-war agrarian policy, it is chiefly the agrarian reforms in the east and south-east of Europe that must be taken into consideration (19). They have increased the demand for draught animals by creating a large number of independent or semi-independent farms. The transformation in farms, previously let off in plots by the proprietors, naturally has not produced a great increase in the number of draught animals. In the States where the agrarian reform was generally of that nature (Finland and Yugoslavia) the number of cattle increased slowly while in places where the agrarian reform consisted mainly in the splitting up of large properties, previously farmed as a whole, the increase was very great, chiefly in Greece where the number of mules and jennets increased considerably. In Esthonia, Lithuania, Latvia, Poland and Hungary there was a medium increase. Professor SERAPHIM bases his opinion on this matter on the data in Table XI.

TABLE XI. — *Development in the number of horses, mules and jennets in a few of the countries where agrarian reforms have taken place.*

Horses	1913	1922	1925	1926	1927	1928	1929
Finland . . . . .	100	108	110	109	108	108	108
Czechoslovakia . . . . .	100	—	107	—	—	—	—
Esthonia . . . . .	100	121	136	138	139	138	125
Latvia . . . . .	100	95	110	114	115	114	112
Lithuania . . . . .	100	101	110	119	137	135	130
Poland . . . . .	100	—	94	—	118	—	116
Hungary . . . . .	100	80	98	99	101	102	00
Bulgaria . . . . .	100	37	83	101	—	—	—
Greece . . . . .	100	142	181	188	186	238	—
<i>Mules and jennets</i>							
Bulgaria . . . . .	100	—	140	161	—	—	—
Greece . . . . .	100	177	206	220	218	232	—

For Yugoslavia and Rumania the pre-war numbers of horses are not comparable with the post-war numbers. IHRIG expresses (20) the effects of the agrarian reform in horse-breeding in these two countries as follows:

	1920	1921	1922	1923	1924	1925	1926	1927	1927	1929
Yugoslavia . . . . .	—	100	98	98	100	104	105	106	107	108
Roumania . . . . .	100	114	121	123	124	122	126	131	131	132



As the reform in Rumania did not commence until 1921 this Author accounts for the rapid increase in the number of horses in this country up to 1922 by the great loss suffered during the war. The fact that the number of horses has not decreased since that date, but, on the contrary has increased, is probably related to the agrarian reform. The index-figures concerning Rumania also confirm the opinion of SERAPHIM. The radical agrarian reform in Rumania resulted in a great increase in the number of horses and what is even more remarkable is that the number of oxen decreased at the same time, that is, a displacement took place in the categories of large cattle in favour of draught animals and to the detriment of cattle for production.

The agrarian reforms did not only modify the number of horses but also their quality. According to NICULESCU (21) the new small owners preferred a light horse (1.30 to 1.45 m.) useful also for rapid transport over long distances. It is, however, probable that this modification is also due to the fact that the new owners generally used vehicles and farm implements (sowing machines and ploughs) lighter than those previously employed in the large estates and that they were accustomed to feed their horses more frugally which is not possible with the heavy horses adopted by the owners of large properties. It may be supposed that the increase in the number of horses is really only a greater division of the of the sources of energy. If it is remembered that where radical reforms have taken place many private studs have been abolished, it will be easy to understand how, parallel with the increase in numbers, the quality of horses has so greatly deteriorated that at present it is difficult even to find army remounts (22).

The horse-trade underwent a radical transformation after the war which had an enormous effect on horse-breeding in exporting countries. Unfortunately no international statistics on the export trade in horses are available, so that the modifications in this respect cannot be followed. It must, however, be added that even if quantitative information is lacking on the export trade not much could be learnt from such information and especially from the point of view of breeding as the exporting countries also often import. Sometimes, as in France, exportation consists exclusively of very valuable animals for breeding purposes and draught horses, while importation consists of animals of an average commercial value or horses for butchers meat. The German export trade is almost the reverse to what is generally noticeable in other countries and consists of horses for butchers meat. The surplus or deficit of the export trade cannot give an exact idea of the situation unless the average value of exported and imported horses is calculated and compared.

In considering the structure of the present day international trade in horses in broad outlines, a great reduction will be noticed in comparison with the pre-war trade and even with during the years immediately after the war, the reasons for which are the general reduction in purchasing power and the autarchic tendencies which have made themselves felt in this respect perhaps more than in any other as the horse is always considered an instrument of war, *par excellence*. A proof of this may be seen in the export taxes applied by certain countries (23), with a view to preventing the export of horses until the number of horses destroyed in the war had been replaced. During the first years after the war, the

objective was generally to not only arrive with the greatest possible rapidity at the same number of horses that existed before the war, but also to produce additional horses which would be required in event of another war. This protectionism made itself felt in the overcrowding of the markets (24).

Three kinds of horses were chiefly required: stallions, remounts for the army and draught horses. Countries which had suffered most from the war, such as Poland, Greece and Russia, needed principally stallions. Following the measures taken for making up the numbers as far as possible, the export trade in horses was fairly active after the war. When the numbers had been made up the export trade in service horses decreased continuously and is today confined to strict necessities. The diminution in this branch of the export trade in horses is doubtless caused by the annual reduction in demand (following motorisation and the longer and better utilisation of horses), but also by a more scientific method of horse-breeding which has tended to increase numbers in years when the proportion of foals in relation to the number of horses more aged shows a certain increase in the average age of the total number of horses and thereby a future demand. Compared to the diminution of the export trade in service horses, the export trade in horses for the butcher has remained fairly stable and plays a relatively increasing part in Europe. The figures in Table XII show the contraction in the export trade.

TABLE XII. — *Export trade in horses from Germany from 1912 to 1934.*

Years	Importation (in thousands)	Exportation (in thousands)
1912-1913 (average) . . . . .	138	7
1925 . . . . .	44	11
1926 . . . . .	19	13
1927 . . . . .	35	10
1928 . . . . .	22	13
1929 . . . . .	20	15
1930 . . . . .	13	21
1931 . . . . .	6	17
1932 . . . . .	12	6
1933 . . . . .	24	0,1
1934 . . . . .	22	0,7

Germany, which before the war imported about 140 000 horses and thus was the most important factor in the export trade of horses, imported, in the period 1926-1930, only an average of 21 000 horses per annum; but, on the other hand, exports from Germany were at the same time so large that statistics for the year 1930, for example, show a surplus exportation of more than 7 000 horses. According to HENCKELMANN (25) this only appears to show that the production of horses in Germany had become independent of other countries, as the exportation amounted to 90 % of the horses for the butcher, while the num-

ber of horses for breeding and service horses remained always, on the same level. The great reduction in importation in relation to the post-war period is, in his opinion, less the result of breeding, properly so called, than of the "multiplication of horses" during the inflation period. The subsequent development in the trade balance of the German export trade shows a great reduction in exports since 1933 which seems to justify this opinion.

A parallel diminution took place also in other exporting countries. Australia, which from 1901 to 1905 exported about 18 000 horses per annum, from 1928 to 1932 only exported less than 6 000 per annum. France (26) which before the war exported annually an average of 3 100 stallions and 25 000 mares and foals, in 1927-1929 only exported an average of 1500 stallions and 7 200 mares and foals. These figures diminished even further in the following years so that the total exportation in 1932 amounted to no more than 1934 horses and, in 1933, only 1153 horses (On account of the large imports of horses for the butcher and services horses France has, all the same, a continuous excess of imports).

Belgium, which exported a great number of horses before the war (28 000 in 1919; 42 000 in 1913) continued exporting after the war and in 1926 exported 35 000 horses. During the last few years, however, exports from Belgium have diminished like those of other countries (11 000 in 1933; 8 000 in 1934).

Among the South American States, Argentina had been able to develop the export trade in the most satisfactory manner and reached a maximum of more than 45 000 horses in 1904. Although exports of horses from Argentina has increased to a certain extent during the last few years on account of the war between Bolivia and Paraguay, the annual average is now only about 6 000 horses.

TABLE XIII. — *Exports of horses from Hungary, Yugoslavia and Poland (in thousands) from 1925 to 1934.*

	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Hungary . . . . .	44	30	29	29	29	28	16	19	22	13
Yugoslavia. . . . .	33	37	42	38	37	30	26	20	34	36
Poland . . . . .	33	48	21	14	20	51	61	22	17	—

The development in the international horse trade during the last few years is shown in Table XIII which gives the exports of horses from Hungary, Poland and Yugoslavia from 1925 to 1934, these countries being considered among the chief horses exporting countries. (The pre-war years cannot be compared to those given below on account of the territorial modifications that have taken place).

It has been remarked above that horse-breeding in the Scandinavian countries was considerably stimulated by a series of favourable circumstances related

to the war and subsequently diminished greatly. The figures for the export trade from Denmark show this development clearly (27).

Exports from Denmark, which in 1900 amounted to 15 000 horses, were on an average about 25 000 horses from 1900 to 1931 and reached the maximum of 96 000 horses in 1914. During the years 1930-1933, Denmark exported an average of about 10 000 horses, half of which were intended for the butcher. At the present time there is a constant importation into Denmark of light horses called « Russian » which are extensively used by small owners.

The greater part of the export trade is carried on within the different continents; over-seas trade is small and is restricted primarily to exports of animals for breeding purposes and race-horses from Europe to Asia (Japan and India) and America and a few to Africa. Other countries outside Europe exchange small numbers of horses among themselves, chiefly service horses; their exports to Europe are small (The number of horses from the French colonies in North Africa and from Argentina are decreasing continuously). In Europe the movement from East and South-East to West is at present the most important from a quantitative point of view. There may be noticed in this respect a certain displacement in relation to the pre-war period as shown by imports into Switzerland which is chiefly an importing country and supplied its annual requirements in horses for the greater part by imports before and during the war (about  $\frac{2}{3}$ ). Annual imports were before the war (excluding horses for the butcher), on an average 9 390 (1909-1914) the greater part of which came from France (about 5 000), Belgium (1000), Great Britain (800), Austro-Hungary (500) and Italy (500). Even during the war Switzerland imported horses though in reduced numbers on account of the difficulties of the moment. After the war imports varied and during the last few years have been maintained at about the same level as before the war. The changes in the origins of imports may be seen from Table XIV which shows the total imports of horses into Switzerland and the numbers from Hungary, Poland and Yugoslavia from 1930 to 1934.

TABLE XIV. — *Development in imports of horses into Switzerland from 1930 to 1934.*

	1930	1931	1932	1933	1934
Total importation . . . . .	9 564	11 365	7 985	5 926	5 082
From Hungary, Poland and Yugoslavia . . . . .	3 800	5 315	3 649	3 281	2 440

The above figures are sufficient to briefly illustrate the diminution in the export trade in horses in relation to the pre-war period. The retrograde tendency becomes more pronounced during the course of these years; quotas, prohibitions on importation and monetary restrictions have contributed towards reducing the international horse trade to a minimum. It is clear that this situation has

had a disastrous effect on horse-breeding in countries exporting the greater part of their produce. SZCITOVSZKY, for example, is of the opinion that the reduction in the number of horses in Hungary is chiefly accounted for by the diminution in the possibilities of exportation. This also applies to other countries.

The reduction in the export trade and chiefly the autarchic tendencies has also other results. The international horse trade was, before the war, chiefly based on the exchange of different types of service horses which were bred in the localities with conditions most suitable for their production (28). At the present time almost all the countries try to themselves breed the types of service horses required which sometimes renders the types bred less uniform. It is true that today the demand for service horses is much less than before the war which also restricts the latitude for variation.

As has already been remarked, this article must be limited to considering the factors which had international results on the development of the total number of horses and local conditions in different countries must be omitted. The complaints of a local nature most generally heard concern the insufficiency of subsidies from the State, the small amount of remounts bought by the army, the fall in the price of remounts, the exaggerated encouragement of motorisation by the State, the indifference shown to the recommendations made by owners of heavy horses with regard to the construction of roads, the slippery surface of modern roads, the heavy costs of production, etc. Although a description of the development of horse-breeding in different countries is intentionally omitted, conditions in Russia must be discussed in greater detail. From various points of view Russia is in a different situation with regard to horse-breeding. On the one hand, she still possesses a greater number of horses than any other country and on the other, the decline in horse-breeding in Russia since 1929 has been so disastrous that it can hardly be equalled in any other period of the history of horse-breeding.

The number of horses in Russia increased greatly up to 1929, and amounted to 34 million horses, equalling that of the pre-war period. Following forced collectivism a rapid and sudden diminution took place which was not arrested either by the Government programme for horse-breeding or by the newly organised enterprises for horse-breeding. In 1933, the total number of horses was no more than 15.6 millions; the losses exceeded by several times, not only the diminutions in all the other countries in the world during that period, but also exceeded the total number of horses in the United States which, with 11.8 million horses in 1934, was the second largest owner of horses in the world. It would take too long to enumerate all the mistakes made and all the details of this disastrous situation. They have now been recognised by the Soviet Government itself and efforts are made, by numerous measures (establishment of studs, re-organisation of collective farms, etc.), to combat this situation. The numbers

of horses do not continue to decrease as rapidly as in the first years of collectivism, but, in 1934, there was still a diminution of about 5 % compared to the number of horses in the preceeding year. The trend of the curve of development has not yet changed and time will prove whether the optimism of the Soviet authorities is justified or not (29).

In addition to the causes for the decrease in the number of horses, the effects must also be discussed.

The diminution in draught horses has naturally decreased the need for feeds and a part of the feed provided by grass-land and pastures has become available for produce yielding animals, or the production of forage has been restricted and the areas available have been devoted to the production of food for human beings. A few figures are sufficient to make this problem clear. According to HOESCH, the horses in Germany consume annually 5.5 million quintals of wheat bran; 10.5 quintals of rye and barley; 55.0 quintals of oats; 1 million quintals of peas and haricot beans; 25 million quintals of potatoes; 130 million quintals of hay; 25 million quintals of straw and other coarse forage. Generally speaking 18 to 20 % of the German production in starch value is transformed into energy by draught animals. According to HENCKELMANN, the areas cultivated for this purpose are sufficient to provide food for 10 million persons. HANAU (30) estimates that, following the decrease in the number of horses in Germany, 3 million quintals less of oats were consumed in 1930 than in 1925. Naturally all other kinds of feeds for horses must also be taken into account, also the average amount of grazing land utilised for horses, without mentioning the forage which, in general, is not sold and thus remains unutilised.

A pamphlet of the " Horse Association of America " shows that, following the decrease in the number of horses and mules in the United States, about 18 million acres are no longer utilised for the production of forage. This large area is now used for producing human food and has had a considerable influence on the over-production of cereals and the fall in prices. Moreover, the farmer who no longer uses horses contributes towards decreasing the markets for forage. By replacing horses by motors the farmer has also injured himself in another way; he has lost a part of the income derived from horse-breeding which contributed towards reducing the costs of equipment. He can now completely utilise only a few kinds of forage and the manure is not so good. The markets for feeds and forage are also restricted and the need of ready money for farming expenses has increased (costs of expenditure on machines, fuel, spare parts).

In addition to all these disadvantages regarding private economy, there are others which concern national economy: diminution in the national capital caused by the decrease in the number of horses, loss of work for labourers, de-

crease in the revenue from horse-breeding, less employment for horse drivers, less work for certain artisans and industries, as for example, farriers, builders of carts and carriages, harness-makers, etc.

A certain reaction to these circumstances may be observed. Thus it is interesting to note that the Argicultural Bank of Western Australia, refuses to grant credits for the purchase of tractors, this decision being approval by a State Commission. In Argentina, there was no import duty on tractors up to the autumn of 1931, but after that date a duty of 10 % of the estimated value had to be paid, etc.

When judging the advantages and disadvantages of replacing horses by motors, certain economic conceptions must now be taken into account, above all the autarchic tendency. At the present time the extent to which the requirements of certain countries for horses, forage, fuels and machines are covered by internal production is estimated and whether the area utilised for cultivating forage plants could not be advantageously used for cultivating cereals, etc. Here arises a complexity of problems which today often produce an antagonism between the points of view of private economy and national and world economy. It is extremely difficult to fore-see the future with regard to production from the international point of view.

(To be continued).

E. MOSKOVITS

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## PRESENT STATE OF THE DAIRYING INDUSTRY IN VARIOUS COUNTRIES: (5) AUSTRIA (\*).

On account of the nature of the country dairying is the most important branch of agricultural production in Austria. Of a total area of 7 630 000 hectares, 4 030 000 hectares are utilised for agricultural purposes, excluding forests; 65 % of this area is grass land, and land cultivated for the production of forage plants.

Production of cows milk in Austria may be estimated at 2.4 millards of litres annually, value about 625 million *schillings*.

During the last 10 years dairying in Austria has shown a remarkable development. The number of cows, milk production, and the use of this product have progressively increased. Within a relatively short space of time national production has been able to satisfy the needs of the country and the export trade in dairy products has become active.

This progress has been made possible by the natural and economic conditions and also by the standard of technical production.

In addition, the favorable prices for dairy products on the international markets from 1924 to 1929 have encouraged the development of this industry. The surplus production which cannot be absorbed within the country is marketed abroad in the form of butter and cheese. It was predicted that the butter-making industry in Austria would develop to the same extent as in Denmark and the cheese industry to a greater extent than in Switzerland. This was proved to be inaccurate after the fall in prices of dairy products in 1929. With regard to the internal market, however, the fall in prices was not very great in Austria as the market was protected by customs measures established in 1924 and thereby rendered to some extent independent of the movement of international prices, but as the internal market could not entirely absorb all the dairy products of the country exportation was continued even if the prices obtained for products meant selling at a loss.

For this reason a great number of producers could not cover their expenses and, if the milk was utilised for butter-making, production, and even their existence, appeared to be menaced. Consequently, they concentrated more on selling the milk in liquid form for which they obtained a high price, thanks to the existence of special institutions. The supply of milk in liquid form, however became too great and the prices gradually diminished.

In order to deal with this state of affairs numerous political agrarian measures were taken which, on the one hand, were directed towards stabilising the prices of liquid milk for direct consumption, and, on the other, towards indemnifying producers for milk they could not sell for direct consumption. A system of subsidies for exportation is included in this programme.

(\*) The previous articles of this series appeared in this *Bulletin*, 1934, No. 11 (France), 1935, No. 4 (Italy), 1935 No. 6 (Hungary), 1935, No. 7 (Czechoslovakia)

## I. — DAIRYING SPECIES AND BREEDS.

The categories and distribution of farms, and the number of cattle in Austria are shown in Table I. In this country 96.7 % of the farms are small or medium sized and occupy almost half of the total area (47 %).

TABLE I. — *Distribution of farms and cattle in Austria.*

Categories of farms	Area in hectares	Number of cows	Number of cows per 100 hectares
" Dwarf " farms (less than 5 ha) . . . . .	437 025	267 746	61,0
Small farms (5 to 20 ha) . . . . .	1 603 530	501 593	31,0
Medium sized farms (20 to 50 ha) . . . . .	1 541 504	301 096	19,0
Large farms (50 to 200 ha) . . . . .	1 001 712	93 997	9,0
Large estates (more than 200 ha) . . . . .	3 023 741	42 611	1,4
<i>Total . . .</i>	<i>7 607 512</i>	<i>1 207 083</i>	

The number of cattle decreases according to the size of the farm.

After the war only three assessments have been made of cattle in Austria: on 7 March, 1923, on 14 June, 1930 and on 22 March, 1934. The data obtained from this last assessment can only be compared with that of 1923. In Table II will be seen the provisional data obtained from the assessment of cattle in Austria, including cattle, sheep and goats.

TABLE II. — *Compared data for the 1st and 3rd assessment of cattle in Austria.*

	7 March 1923	22 March 1934	Data of 1934 compared with 1923
Cattle . . . . .	2 348 627	2 162 346	108,6
Cows . . . . .	1 209 874	1 074 864	112,6
Sheep . . . . .	263 400	597 413	44,1
Goats . . . . .	326 497	382 146	85,4

## I. - CATTLE.

Among dairying breeds in Austria mention must first be made of the *Pinzgau*. This breed constitutes about 20 % of the total. It serves a triple purpose: meat, milk and draught. The average milk yield is rather high: more than 2 300 kg. per annum and the fat content is generally from 3.8 to 3.9 %.

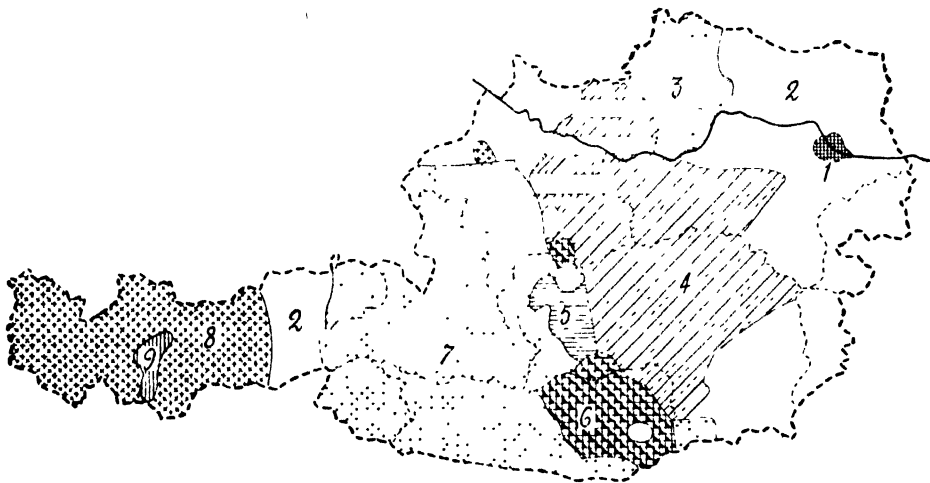
The *spotted cattle* are the most numerous and constitute 38 % of the total. The annual milk yield exceeds 2 500 kg. with a fat content of 3.8 to 3.9 %.

The *grey-brown cattle* of the mountains are chiefly found in the Tyrol and Vorarlberg with two sub-breeds: the *Montafoner* and the *Oberinntaler*.

The *Montafoner* have an average milk yield of 2 800 litres per annum with a fat content of 3.8 %. These cattle are also very popular on account of their fattening capacity.

The *Oberinntaler* is the smallest dairying breed in Austria. It is a breed with small requirements, utilises its feed extremely well and is very popular on account of the length of the milk producing period.

*Distribution of various breeds of cattle in Austria.*



- 1 = Town of Vienna
- 2 = Spotted cattle.
- 3 = Waldriertler breed.
- 4 = Murbodner breed.
- 5 = Bergschecken breed

- 6 = Light coloured cattle
- 7 = Pinzgauer breed
- 8 = Montafoner breed.
- 9 = Oberinntaler breed.

The *Murbodner* and the *light coloured cattle* of *Carinthia* produce an average of 2 300 and 2 000 kg. of milk respectively which is extremely rich in fat. These two breeds are both excellent milking breeds and are characterised by the quality of the meat.

There are also, in Austria, the *Waldriertler*, *Bergschecken* and *Tux-Zeller-taler* breeds. The distribution of the various breeds of cattle in Austria is shown in the accompanying plate taken from the article by Adolf STAFFE entitled "Die Grundlagen der Milchwirtschaft und die wichtigsten Milchevichrassen in Oesterreich" (The bases of the dairying industry and the principal dairying breeds in Austria), published in the *Oesterreichische Milchwirtschaftliche Zeitung*, 1934, Nr. 9.

## 2. — SHEEP.

At the present time in Austria, production and utilisation of ewes' milk takes a secondary place. Of the numerous sub-breeds of Carinthian sheep, the Uggowitz are milked and the milk is used for cheese-making. It is the only breed of any practical importance. The Seelander and Steinschaf are of small importance.

## 3. -- GOATS.

In the Austrian Alps, and chiefly in the Tyrol, Voralberg, Carinthia and Salzburg, other short coated breeds are found, besides the Saanen goats introduced from abroad, the chamois coloured Tyrolean and Pinzgau being the most valuable. There are two types of the chamois coloured Tyrolean goats, one with horns and another without. Of the Pinzgau there are three types; 2 chamois coloured with and without horns and 1 horned, black type. Brienz goats have been imported from Switzerland in order to improve goat-breeding.

## II. — LIQUID MILK.

The total number of cattle amounts to about 2.3 million head, 1.2 million being dairying cows. If an annual yield of 2 000 kg. of milk per cow is estimated (this figure being too low rather than too high) the whole milk production may be estimated at 2.4 milliard kg. According to an approximate valuation this amount may be distributed as follows—

Raising and fattening . . . . .	about 15 % =	360 million kg		
Liquid milk . . . . .	" 50 % =	1200	"	"
Butter and whipped cream . . . . .	" 25 % =	600	"	"
Cheese . . . . .	" 10 % =	240	"	"

Of the liquid milk, the amount supplied to Vienna (1.8 million inhabitants) is by far the largest. From 700 000 to 800 000 litres are delivered daily. The amount supplied in the Federal Provinces is as follows

Lower Austria . . . . .	78,8 %	Salzburg . . . . .	2,91 %
Upper Austria . . . . .	4,21 "	Tyrol . . . . .	0,25 "
Styria . . . . .	5,45 "	Burgenland . . . . .	8,25 "
Carinthia . . . . .	0,10 "	Vienna (territorial area) . .	2,5 "

Of the milk marketed in Vienna, 85 % comes from within a radius of less than 100 km, that is, rather a smaller radius than that of other capitals.

Delivery of milk in Vienna is organised almost exclusively by central dairies where the milk is pasteurized. Pasteurization is compulsory in Vienna

also recently in Graz and Linz and certain other localities in Styria. The milk must be heated to 80° C for at least 3 minutes or to 63° C for 30 minutes. It must afterwards be cooled to 7° C. Milk for children is exempted from pasteurization, as for this milk certificates are issued under very strict conditions.

In Austria, the daily consumption of milk is estimated at 0.54 litres per capita and for Vienna alone at 0.48 litres. Comparing this figure with those of other capitals it will be seen that it is slightly below the average.

Of the milk supplied to Vienna, 600 000 litres are consumed in liquid form and the remainder is used industrially. A special equalisation fund, called « Ausgleichsfonds », has been established in order to retain a certain relation between the prices of liquid milk and milk utilised industrially. This fund levies a tax of 3 *Groschen* per litre on the price of liquid milk this sum being used in favour of milk intended for manufacturing dairy products. This fund also pays a bonus on the butter for export as the price of butter on the world market is much lower than the price on the home market.

The organisation of the dairying industry in Austria is on a co-operative basis: at the present time about 65 % of dairy production is in the hands of co-operative societies and 30 % private persons.

Dairying in Austria has been organised by Provinces and it is only within the last few years that the associations of the Provinces have united in large central organisations which include both private and co-operative dairying.

### III. -- BUTTER PRODUCTION.

According to STAFFE the total production of butter is about 22 million kg., of which 2,3 is dairy butter and 1,3 is farm butter. Among the Federal Provinces Upper Austria with 50 co-operative dairies and 85 industrial dairies, and Lower Austria with 27 co-operative dairies and 38 private dairies, are the most important butter producing regions.

According to information from the Federal Ministry of Agriculture and Forestry, butter production in 1931 was 18 332 000 kg. This may be distributed among the Federal Provinces as is shown in Table III.

There are four qualities of butter graded according to a system of 20 points:--

Taste. . . . .	10 points
Odour . . . . .	3 "
Appearance . . . . .	2 "
Consistency . . . . .	2 "
Finish . . . . .	3 "

The minimum required is: —

- 16 points for butter of 1st quality (« Teebutter »);
- 13 to 15 points for 2nd quality butter (table butter);
- 10 to 12 points for 3rd quality butter (cooking butter, rendered butter);
- less than 10 points for 4th quality butter (inferior rendered butter).

TABLE III. — *Butter production in the Austrian Federal Provinces in 1931.*

Federal Provinces	Litres of milk for butter-making	Butter production in kg
Lower Austria. . . . .	66 000 000	2 640 000
Upper Austria . . . . .	232 000 000	9 280 000
Salzburg . . . . .	12 000 000	248 000
Styria . . . . .	50 000 000	2 000 000
Carinthia . . . . .	53 000 000	2 120 000
Tyrol . . . . .	25 000 000	1 000 000
Vorarlberg . . . . .	1 300 000	52 000
Burgenland. . . . .	19 000 000	760 000
<i>Total . . .</i>	458 300 000	18 332 000

Farm butter, peasant butter and dairy butter are simply names denoting their origin and do not apply to the quality, it is, however, necessary that butter called by these names should have the points required for 2nd quality butter.

Annual consumption capita is estimated at 2.65 kg. (1931). In comparison with that of other countries this is very low and may certainly be accounted for by the lack of money.

The figures in Table IV give an idea of imports and exports of butter during the last few years. The maximum exportation was reached in 1931 after which it fell in relation to the fall in prices on the foreign markets.

TABLE IV. — *Exports and imports of butter (in quintals)  
from 1928 to 1933.*

	1928	1929	1930	1931	1932	1933
<i>Exports to</i>						
Germany . . . . .	2 287	7 254	14 732	12 393	7 081	5 544
Switzerland . . . . .	2 603	2 770	3 343	409	15	12
Italy . . . . .	5	3	—	—	—	420
England . . . . .	—	—	226	—	—	4 843
France . . . . .	—	—	—	—	—	1 000
<i>Total . . .</i>	4 962	10 028	18 649	13 970	7 097	11 819
<i>Imports from</i>						
The Netherlands . . . . .	3 699	943	593	2 707	386	88
Denmark . . . . .	256	—	1 057	1 160	2 071	200
Poland . . . . .	1 101	571	654	2 778	12	2
<i>Total . . .</i>	8 097	4 983	2 469	7 097	3 637	730

#### IV. — CHEESE PRODUCTION.

According to information from the Federal Ministry of Agriculture and Forestry, cheese production in 1931 was 17 148 200 kg. and may be distributed among the Federal Provinces as shown in Table V.

TABLE V. — *Cheese production in the Austrian Federal Provinces in 1931.*

States	Litres of milk used for cheese- making	Production of cheese in kg
Lower Austria . . . . .	5 000 000	500 000
Upper Austria . . . . .	5 000 000	500 000
Salzburg . . . . .	30 000 000	3 000 000
Styria . . . . .	4 800 000	380 000
Carinthia . . . . .	6 000 000	600 000
Tyrol . . . . .	88 500 000	8 850 000
Vorarlberg . . . . .	33 000 000	3 300 000
Burgenland . . . . .	182 000	18 200
<i>Total (excluding the Alpine cheeses) . . .</i>	<i>171 482 000</i>	<i>17 148 200</i>

The manufacture of hard cheeses absorbs 85 % of the milk (100 kg. of milk give about 9 kg. of cheese) and soft cheese 15 % of milk (100 kg. give about 10 kg. of cheese).

Melted cheeses have become of considerable importance in Austria. They are found on the market under the names of: cheese in boxes, cheese in blocks, cumin cheese, garlic cheese, etc.

The average consumption of cheese in Austria may be estimated at 2.5 kg. per capita per annum. This is low in comparison with other countries.

The cheese trade shows considerable variations both with regard to imports, which have been greatly reduced during the last few years, and to exports which have increased considerably as shown by Table VI.

Among cheeses imported from Czechoslovakia the most popular are Brynza, cream cheeses of Olmutz, green cheese: from Italy; Gorgonzola, Bel Paese, Parmigiano: from the Netherlands; Edam.

#### I. — SOFT CHEESES.

Soft cheeses are chiefly made in Upper Austria, Lower Austria and Salzburg and are as follows: Imperialkäse, Yoghurtkäse, Camembert, Brie, Romadour, Backsteinkäse, Scholossakäse. Mondseer Salzburgerbrotkäse; cheeses resembling Bel Paese; Tiroler Gold, Almgold; Landkäse, Stracchino and cream cheeses.

TABLE VI. — Imports and exports of cheese (in quintals)  
from 1928 to 1933.

	1928	1929	1930	1931	1932	1933
<i>Imports from</i>						
Czechoslovakia . . . . .	15 116	13 759	13 553	12 597	7 462	3 898
Italy . . . . .	2 905	2 725	2 772	2 747	2 190	2 207
Switzerland and Lichtenstein	3 600	3 701	3 517	2 855	390	153
The Netherlands . . . . .	2 638	2 503	3 536	3 703	2 361	1 219
<i>Total . . .</i>	<i>25 549</i>	<i>24 546</i>	<i>24 677</i>	<i>23 800</i>	<i>13 305</i>	<i>8 735</i>
<i>Exports to</i>						
Germany . . . . .	7 799	7 654	9 194	10 474	8 487	2 288
Italy . . . . .	1 003	2 234	4 010	2 605	2 000	4 779
France . . . . .	387	585	4 040	5 028	6 075	6 439
England . . . . .	448	432	260	113	105	23
Trans-oceania . . . . .	4	735	1 302	1 291	593	1 025
Belgium . . . . .	—	—	—	—	42	262
Switzerland and Lichtenstein	68	31	145	7 401	20	2 161
<i>Total . . .</i>	<i>10 260</i>	<i>12 078</i>	<i>19 380</i>	<i>27 602</i>	<i>18 844</i>	<i>21 477</i>

*Imperialkäse* is a Gervais type of cheese, but a little dryer, salted and can be conserved longer.

In Austria *white cheese* is often wrongly named Brie.

*Yoghurt* cheese is made, like *Imperialkäse*, from *Yoghurt* milk.

*Hagenberger Schlosskäse* resembles the *Romadour* type of cheese.

*Mondsee cheese in boxes* closely resembles *Munster* cheese. It is also known as « *Mondseer Schlosskäse* ». The forms weigh 1 kg., are 6 cm. in height and 15 cm. in width. This cheese is very popular in Austria.

The *cream cheeses* have only been made industrially on a large scale during the last few years, this production having developed unexpectedly. In 1933 the cream cheese factories of Tulln produced 600 000 kg. of this type of cheese which up to a few years ago had been imported in large quantities.

Among soft cheeses there is a whole series of varieties of cheese prepared with acid milk and *Penicillium*. The best known are. those of Radstadt, Tyrol, the grey cheese of Styria, the cheese butter of Carinthia, the sour cheese of Vorarlberg and the cream cheeses.

*Tiroler* and *Vorarlberger Sauermilchkäse* are prepared with skimmed milk, 100 kg of which give about 11 kg. of fresh cheese and 7 to 9 kg. of semi-ripe cheese.

*Tiroler Craukäse* is also made with skimmed milk. The yield in cheese per 100 kg of milk is about 9 kg. of fresh cheese and 6 kg of ripe cheese which sometimes shows moulds.



*Radstadter Schnittkäse* closely resembles the *Tiroler Graukäse*. These two cheeses ripen with moulds like *Roquefort* and *Gorgonzola* and are sometimes pierced so that the moulds may develop in the interior.

*Montafoner Krauterkäse* is prepared with dried herbs (*Achillea moschata* and *Achillea atrata*).

*Karntner Sauermilchkäse* is also called *Steirerkäse*.

*Schmalzkäse* is made in Carinthia with a mixture of salted curd and butter.

## 2. — HARD CHEESES.

Hard cheeses were first made in Austria in Vorarlberg where  $\frac{1}{3}$  of the total quantity of hard cheese is produced in spite of the fact that this region possesses only 3 % of the total number of dairy cattle. In the Tyrol and Salzburg, *Emmenthal* is chiefly produced. There are 422 cheese factories in the valleys and 780 in the mountains, 86 % being in Vorarlberg, Tyrol and Salzburg.

The principal hard cheeses are: *Emmenthal*. *Halbemmenthal* and *Groyer* (*Gruyere*) and the cheeses made with a mixture of milk are those of the *Edam* and *Gouda* types, also *Pinzgauer Schnittkäse*.

*Pinzgauer Schnittkäse* (*Pinzgau table cheese*) is made in the Tyrol with a mixture of cows' and goats milk. It is a cheese with a low fat content weighing about 22 kg. and has a diameter of 45 to 50 cm. and a height of 10 cm.

*Halbemmenthal* is made chiefly in Vorarlberg and the Tyrol. It weighs about 50 to 70 kg. and is a softer cheese with irregular eyes. From 100 kg. of milk about 8 kg. of ripe cheese is obtained and from 1.25 to 1.5 kg. of butter.

*Groyer* is a softer cheese than *Halbemmenthal*, semi-fat, and weighs from 20 to 50 kg. It is made in the Tyrol and Vorarlberg.

*Vorarlberger Magerkäse* or *Rasskäse*, or *Alpine cheese* is made in Vorarlberg and in the Alps. From 100 kg. of milk, 6 kg. of fresh cheese is obtained and 3.3 kg. of butter.

The *Mischmilchkäse* are prepared with a mixture of skimmed and whole milk.

## V. — OTHER MILK DERIVATIVES.

In Austria, the *dried* and *condensed* milk industries are not greatly developed. Condensed milk is almost entirely imported, while dried milk is at present prepared by the large dairies in Vienna.

E. GASSER.

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## “ THE PRESENT STATE OF MILK RECORDING THROUGHOUT THE WORLD ”

In the article “ The present State of milk recording throughout the world ” published in Number 2 (February 1935) of this Review as an extract from the Monograph ‘ Dairy cow testing throughout the world ’ the following modifications have been found necessary:

Table I. Column “ Number of milk recording organisations ”: read for France 61 instead of 63. Column “ Number of farms practising milk recording ”: read under France 1650 instead of (1) 1650. Column “ Number of cows tested ”: read under Germany 1 135 870 instead of (1) 135 870 and under France 20 603 instead of (1) 20 000.

Table II. Column “ actual ”: read, under France, 24 to 36 instead of 21 to 90.

Page 100 T, Line 21: omit the words: “ and the semi-official tests in Southern Rhodesia ”.

Page 100 T, Line 26: omit the word: “ France ”.

Page 101 T, Line 7: omit the word: “ France ”.

## **MISCELLANEOUS INFORMATION**

**BARI FAIR (ITALY).** — The 6th Fair at Bari ("Fiera del Levante") will be opened on 6 September, 1935 A. "Rural Village" will be shown in which will be grouped at the rural activities, properly so-called, also the industrial activities relative to farm products

Among novelties shown will be a kind of agricultural shed invented by Ing. TRILLO which can be dismounted and transported.

## **BOOK NOTICES (\*)**

**ACHMID A.**, *Nutztierzuchtung und Kulturassen der Schweiz*. 76 p. Verlag von Huber & Co., Frauenfeld und Leipzig 1934.

For some time nothing has appeared in technical literature on the subject of stock-breeding in Switzerland, though great progress has been made in this industry during the last few years. This small book on stock-breeding and breeds of cattle in Switzerland just published by A. SCHMID, professor of Animal Husbandry at the Federal Polytechnic School of Zurich, supplies a long felt want. The book is written in a popular style and is easily intelligible to everyone. It is intended both for encouraging Swiss stock-breeders to make further progress in spite of the critical situation caused by the world crisis, and also for foreign technicians wishing to obtain information on the development of Swiss stock-breeding.

In this book are first described the natural, fundamental conditions of stock-breeding in Switzerland and the distribution of the territory into different regions from the view point of animal husbandry. This is followed by a study of the Swiss stock-breeder and his specific qualities, also the economic conditions under which he works.

Finally, there is a description of the breeds of cattle followed by a most useful list of authorities from which information on stock-breeding in Switzerland may be obtained, namely; authorities entrusted with encouraging stock-breeding, agricultural and animal husbandry organisations, institutions for animal husbandry research, technical reviews on this subject.

This work is profusely illustrated with excellent photographs of Swiss cattle and the surroundings in which they are found and contains, as an appendix, a map giving the distribution of breeds.

S. T.

*La Milizia Forestale, anno XII*, 135, p. 148 fig. Tipografia Squarci e Figli, Roma, 1934.

This very interesting report on the activities of the Forestry Militia during 1934, XII year of the Fascist era, appears in the form of a fine book illustrated with numerous photographs and coloured drawings.

This publication gives a very clear picture of the multiple activities carried out by the Forestry Militia during the above mentioned year on the mountain regions in Italy.

(\*) Under this heading are included short synopses of book received for review.

The Chiefs of the Militia have primarily concentrated on the essential factor, « man », by means of a technical, moral and intellectual training at three separate schools: The Officer Pupils' School at Florence, The Under Officer Pupils' School at Vallombrosa (Florence) and the Militiamen Pupils' School at Cittaducale (Rieti). The staff available to the Forestry Militia in 1934 was as follows —

Officers (including Officer Pupils) . . . . .	355
Under Officers and picked Militiamen . . . . .	834
Militiamen and Militiamen Pupils . . . . .	2,641

The sums expended on the various works carried out in 1934 were the following:—

(A) For the work of controlling mountain torrents and afforestation in the mountain basins on behalf of the Ministry of Agriculture . . . . .	38 038 356	lire
(B) For the Provincial Consorzi for afforestation. . . . .	3 972 788	»
(C) For Forest Estates (reafforestation) . . . . .	572 653	»
(D) For other work —		
(1) On behalf of other Ministries . . . . .	778 845	»
(2) On behalf of Communes and other public administrations . . . . .	2 554 424	»
<i>Total</i> . . .	<u>45 917 066</u>	<u>lire</u>

With this sum the following work was carried out —

(1) <i>Afforestation</i> . planting 60 million young trees and 600 000 kg of seed on an area of . . . . .	12 774	ha.
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The uncultivated surface planted represented an area which has never been arrived at up to the present and is equal to 14 times the average attained during the 50 years preceeding the Fascist era

(2) Improvements to forests and complete reforestation over an area of . . . . .	5 818	ha.
(3) <i>Up-keep and enlargement of State nurseries</i> over 233 ha . .	151	nurseries
(4) <i>Control of torrents</i> (dams and walls) . . . . .	386 357	m <sup>3</sup>
(5) <i>Road works</i>		
(a) New roads, chiefly forest roads . . . . .	238 7	km.
(b) Repairing existing roads . . . . .	183 4	»
(c) New paths . . . . .	573 5	»
(d) Improving paths . . . . .	82 4	»
(6) <i>Building operations</i> .—		
(a) New buildings (small forest barracks) — mountain refuges — stables for cattle on Alpine pastures — rural dwellings — depots — saw-mills) . . . . .	568	buildings
(b) repairs and improvements to existing buildings	71	»

(7) *New projects:—*

133 new projects for the control of torrents amount-	
ing to a total of . . . . .	149 049 005 lire
20 new projects of the afforestation Consorzi amount-	
ing to a total of . . . . .	3 180 826 »
156 new projects for the improvement of Communal	
forests amounting to a total of . . . . .	3 865 481 »

In addition, the Forestry Militia supervised and controlled the work conceded by the State to private persons and public administrations. In 1934 works were carried out amounting to a total of 4 251 128 lire

(8) *National Forests:—*

During the year 1934 the total area of these forests increased from 255 000 to 265 000 ha. The « Azienda di Stato » for National Forests is of an industrial nature as it makes itself responsible for the standardization of commercial assortments. In this way, in spite of the very low market price of wood and the utilisation compared with other years (300 000 m ), the « Azienda » has been able to balance its accounts and in fact show a net profit of 5 million lire.

(9) *National Parks:—*

The three parks already established are —

- (a) National Park of the Gran Paradiso, amounting to 56 000 ha
- (b) National Park of the Abruzzi (1934) amounting to 28.000 »
- (c) National Park of Circeo amounting to . . . . . 5.000 »

The National Park of Stelvio is in course of construction

(10) *Improvements to mountain pastures. —*

In 1934, 233 projects for improving pastures were approved amounting to a total of 8 425 510 lire and a total of 2 542 436 lire were advanced by the State, an increase of 50 % over the preceeding quinquennial period.

(11) *Various activities. —*

Afforestation carried out in the Colonies for the purpose of consolidating moving sand dunes and precipitous slopes. - Formation of the first forest survey register in Italy - Annual Service of Forestry Statistics - Service of Forest Police - Administrative Services - Exhibitions and other forms of propaganda - Publications - Lectures - Special courses of instruction - Service of Military Mobilisation - Military training

From this report will be seen the admirable progress made by the Forestry Militia in 1934 in all its branches, administrative, technical and military, under the energetic and able direction of the Commandant, Lieutenant General AGOSTINI.

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# **AGRICULTURAL SCIENCE AND PRACTICE**



# MONTHLY BULLETIN

OF

## AGRICULTURAL SCIENCE AND PRACTICE

### ORIGINAL ARTICLES

#### MORPHOLOGICAL VARIATIONS IN WHEATS

##### METHODS OF OBSERVATION.

The varieties introduced at the Central Station of Agronomical Research at Rabat (Morocco), also those already in cultivation, are subjected to a detailed examination and all their characters, even the very smallest, are described and noted by means of established marks.

A ear is removed from the plant examined for seed for the following year. The remainder of the plant is tied up, labelled and preserved in special sets of pigeon holes in which are placed the pedigree plants of the preceeding years.

The same operation is carried out each year. These plants from successive years serve for identification purposes and for keeping the annual harvest pure as well as for the study of variations.

Independently of this study, which covers the whole of the varieties cultivated at the Station of Rabat and which gives information on the variations previously observed in the same place, other studies are made of the variations taking place in the same strains in the various natural regions of Morocco and under very different climatic conditions, as at Verrières, France (in collaboration with Maison VILMORIN).

Every year since the founding of the Experiment Stations and Farms, identical series of varieties are cultivated for purposes of comparison, partly in the Experiment Farms of Fez, Casablanca (up to 1931), Marrakech, the Stations of Sidi Slimane, Dar Ould Zidouh, M'zouren, El Hajeb and the Trial Garden of Meknes, and partly in the farms of certain colonists under the supervision of the Regional Agricultural Inspectors.

Samples of each variety from these different origins are examined and compared with a sample harvested at Rabat.

Only a few examples noticed of the numerous morphological modifications will be given here.

#### I. — EXAMPLES OF VARIATIONS WITH TIME (AT RABAT)

The characters which most frequently vary are the thickness of the straw, the shape of the ear, the colour of the ear and awns and the length of the teeth of the glumes.

The diameter of the straw, the compactness of the ear and other characters of the awns, the spikelets, glumes and inner glumes only vary slightly.

## 1. — Thickness of the straw.

The variety B. D. B. 0156, which habitually had a solid straw, in 1923 had a semi-solid straw and progressively developed a hollow straw.

The variety B. D. M. 016 had a semi-solid straw in 1921 while from 1925 it has had a semi-hollow straw.

With the variety 096, the semi-solid straw became solid.

The variety 064, with semi-solid straw, after 1925 had an almost solid straw.

## 2. — Shape of the ear.

Straight ears are more or less characteristic of the hard wheats 0134 — 0162 — 0187 — 016 — 030 — 044 — 054 — 0150 — 0156 — 0162 — 0196 — 0200.

An elongated pyramidal form, square in section, passed to a short pyramidal form, rectangular in section, in two cases; a reverse transformation appeared in one case.

A cylindrical form, rounded in section, became pyramidal, square in section, in 5 cases; a reverse transformation took place in one case.

A clubbed form became an elongated pyramid in 3 cases.

A cylindrical form passes to a clubbed form (B. T. 1572 — 422 in 1934).

A tapering form ceased to be tapering in 8 cases; the reverse appeared in 6 cases.

## 3. — Colour of the awns.

(a) *Changes in colour.* — The awns changed from white to blackish white in 10 cases and once from white to blackish russet.

The awns changed from russet to blackish russet in 9 cases, from blackish russet to black in 5 cases and in one case from white to blackish russet.

(b) *Loss of colour.* — Once from black to blackish white, once from whitish to white, twice from russet to white.

## 4. — Colour of the ear.

(a) *Changes in colour.* — In 4 cases the colour passed from white to red or reddish, in 2 cases from reddish white to red, in 4 cases from red to reddish black or black, in 2 cases from white to blackish white, in one case from blackish white to black.

(b) *Loss of colour.* — In 2 cases only, from yellowish white or reddish white to white.

## 5. — Length of the teeth of the glumes.

Short teeth became long (Nos. 105 and 107), the contrary took place with No. 838.

Semi-long teeth became long (Nos. 276); the contrary took place with No. 889.

Wide glumes grew long (Wheat No. 960).

*Inner glumes :*

A stipula appeared on the external edge in No. 263. A stipula disappeared in No. 266.

6. — Diameter of the straw.

It 15 cases it increased ; it diminished in only one case (No. 857).

7. — Compactness of the ears.

It diminished from average to small in 10 cases.

8. — Awns.

(a) *Arrangement*. — In hard wheats :

The awns grouped in bundles were transformed into a single well spread out bundle in two cases.

A well spread out bundle changed into a compact pencil shape in 3 cases.

(b) *Thickness*. — Increased in 2 cases (Nos. 484 and 701).

9. — Spikelets.

Narrow angular spikelets opened (No. 687); the reverse phenomenon appeared in 4 cases.

10. — Glumes.

(a) *Ratio length: width*. — Wide glumes became long (No. 960). Wide glumes became narrow (No. 0179).

(b) *Length of the spines*. — Short spines became long (Nos. 105 and 107); the reverse took place with No. 838. Semi-long spines became long (No. 276); the reverse took place with No. 889.

(c) "*Shoulder*". — A "shoulder" appeared in the glumes of No. 102; it disappeared in No. 526. The shoulder was only lacking on the upper glumes to begin with; was visible on all the glumes of No. 922.

11. — Rachis.

Becomes visible in one case on one profile; on two profiles in one case. It ceases to be visible on one and two profiles in 3 cases.

12. — Aigrette.

Long hairs became medium (No. 107). They became long in No. 081.

# VARIATION IN THE AWNS OF VARIETIES:

B. T. M. 0535 - B. T. C. 335 - B. D. M. 015 - B. D. D. 475.

## 1. — Variety B. T. M. 0535.

- 1923 Average awns (10 cm long), very resistant; yellowish white colour average; diameter 0.7 mm triangular section; very spikey, numerous, small spikes along the edges and on the tip; unequal, deep and clearly marked ridges; ventral surface very rough.
- 1924 Same characters as in 1923 except: section small: 0.5 mm; larger and less deep ridges.
- 1925 Same characters as in 1924 except: longer awns: 12 to 13 cm.
- 1926 Same characters as in 1925.
- 1927 Same characters as in 1923.
- 1928 Same characters as in 1924.
- 1929 Same characters as in 1923 except: longer and thicker spikes.
- 1930 Same characters as in 1929 except: less resistant and more brittle awns
- 1931 Same characters as in 1923.
- 1932 Same characters as in 1930.
- 1933 Same characters as in 1924 except: section smaller and more fragile awns.

## 2. — Variety B. T. C. 335.

- 1921 Innerawns only at the top, very short: 0.5 to 1 cm: white, section triangular; small diameter: 0.4 mm; fairly spikey; short thick spikes on the edges and at the tip; very unequal, large and clearly marked ridges; ventral surface smooth.
- 1922 Same characters as in 1921, but with inner awns all over the upper half of the ear.
- 1923 Same characters as in 1922 except: the ridges and tip are less pronounced and the spikes are thinner.
- 1924 Same characters as in 1923.
- 1925 Same characters as in 1922, but the inner awns are longer chiefly at the top where they measure 2 to 3 cm.
- 1926 Same characters as in 1922, but the inner awns are thinner.
- 1927 Same characters as in 1923.
- 1928 Same characters as in 1921, but the ridges are less marked.
- 1929 Same characters as in 1921 except: the inner awns cover the whole ear and are longer at the top (as in 1925); measuring 2 to 3 cm.
- 1930 Same characters as in 1925, but the inner awns are longer: 3 to 4 cm.
- 1931 Same characters as in 1930, but the inner awns are longer and measure 4 to 5 cm. at the top.
- 1932 Same characters as in 1931, but the inner awns are thicker.
- 1933 Same characters as in 1931, but the ridges are less marked and the inner awns are more fragile.

## 3. — Variety B. D. M. 015.

- 1924 Awns cover the profile and one face terminating in the shape of a pencil; blackish white; long (19 cm.), slightly twisted; average diameter: 0.6 mm; section triangular; short spikes, very numerous at the base, medium length and fairly numerous towards the top; long, unequal and very clearly marked ridges; inside surface smooth.
- 1925 Same characters with regard to the awns as in 1924 except: longer: 21 cm; deep black colour ridges less marked; more twisted; longer spikes.

- 1926 Same characters as in 1924.  
 1927 Same characters as in 1924.  
 1928 Same characters as in 1925 except: colour lighter.  
 1929 Same characters as in 1924 except: larger diameter.  
 1930 Same characters as in 1924 except: fairly short awns (10 cm), smaller diameter; smaller spikes; fragile awns, partly deciduous, completely colourless.  
 1931 Same characters as in 1925 except: shorter awns (14 cm) and small diameter.  
 1932 Same characters as in 1930  
 1933 Same characters as in 1924, but small diameter.

#### 4. — Variety *B. D. C.* 475.

- 1924 Awns covering the profiles and one face ending in the form of a pencil; blackish white colour; length 16 to 17 cm; slightly twisted; diameter 0.8 mm; resistant; section round; very spikey; rough at the base; very numerous spikes but only at the top, they are situated chiefly on the lateral edges and the central tip, varying in length (0.1 to 0.3 mm), pointed, slightly. Fairly long and unequal ridges, but narrow and not very deep or well marked; edges and tip only slightly developed and fairly marked, inner surface smooth except at the base.  
 1925 Same characters as in 1924 except: longer awns (17 to 18 cm); section triangular; edges and central tip black (base darker); spikes more irregular and longer, but arranged more regularly; ridges and tip more pronounced.  
 1926 Same characters as in 1924.  
 1927 Same characters as in 1925 except: deeper in colour and spikes irregular.  
 1928 Same characters as in 1927.  
 1929 Same characters as in 1924 except: longer spikes  
 1930 Same characters as in 1930 except: shorter spikes.  
 1931 Same characters as in 1927.  
 1932 Same characters as in 1925 except: section round and colour deeper.  
 1933 Same character as in 1924 except: completely colourless (white).

## II. — VARIATIONS IN LOCALITIES.

Variations in localities are less fluctuating, more constant and more regular than the variations with time.

In the pure lines grown for comparison in 3 very different regions in Morocco, namely:

- (A) High altitude (El Hajeb and Sefrou);
- (B) Coast region (Rabat);
- (C) Region with a sub-desert continental climate (irrigated cultivation) (Marrakech);

the following morphological variations have been observed:—

### 1. — Average weight of a ear.

The largest and heaviest ears come from Marrakech, Rabat comes second and El Hajeb third.

## 2. — Weight of 100 grains.

The high altitude regions (El Hajeb) yield the largest grains; vegetation is slower; the seeds are better nourished. The region of Marrekech comes next owing to irrigation. At Rabat the grain is relatively much smaller and lighter on account of blast.

(a) *Blast*. — The irrigation at Marrekech prevents blast which is more prevalent at Rabat than at El Hajeb.

(b) *Spotting*. — Though irrigation prevents blast it favours spotting of hard wheats.

The largest co-efficient of blast is, in fact, at Marrekech; then Rabat and then El Hajeb.

## 3. — Compactness of the ears.

The greatest compactness is found in ears from the regions of Sefrou and El Hajeb. This character, however, is not constant and is chiefly dependent on rainfall during the year.

## 4. — Colour.

Loss of colour is due to want of humidity and an excess of heat at the time of ripening, but the black and russet colours do not behave in the same way in two varieties with different colouring as is shown in this Table —

Regions	Black variety	Red variety
Marrekech . .	Black ears, black awns . . . . .	Very light red ears, yellowish awns
El Hajeb . . .	Blackish ears, blackish white awns, completely colourless at the top	Dark red ears, russet awns
Rabat . . .	Blackish white ears, whitish awns . .	Light red ears, white awns

## 5. — Villosity.

The variations only affected size and length of the hairs of the awned varieties.

Thus, at El Hajeb and Sefrou the hairs on the glumes are thicker and shorter than at Rabat, while at Marrekech they are longer and slightly thicker than at Rabat. The varieties with partly deciduous hairs at Rabat have very tenacious hairs at Sefrou and Marrekech.

## 6. — Awns.

The awns like an open paint brush at Rabat change into the form of a pencil at El Hajeb and a very wide open paint brush at Marrekech.

The awns with average diameter at Rabat have a much larger diameter at El Hajeb and Marrekech.



## 7. — Glumes.

(a) **Teeth.** — The teeth of glumes, average at Rabat, become shorter and less sharp in the region of El Hajeb; on the contrary, at Marrekech they become longer and sharper.

(b) **Size.** — The glumes are larger at Sefrou and El Hajeb than at Rabat and Marrekech. The « shoulder » of the glume, when it exists, follows the same variation.

## 8. — Spikelets.

The angle at which the spikelets open is small at Rabat and a little larger at Marrekech and El Hajeb. This angle depends, in fact, on the development of the grains and the fertility of the flowers.

## 9. — Straw.

A semi-hollow straw at Rabat becomes solid at El Hajeb; on the contrary, the straw wall becomes thinner at Marrekech than at Rabat.

## 10. — Duration of vegetation.

The following are data obtained in the 3 regions mentioned above:

Regions	Wheats	From sowing to earing	Total duration
Rabat . . . . .	{ Soft wheat	116 days	170 days
	{ Hard wheat	166 "	192 "
Marrekech . . . . .	{ Soft wheat	108 "	178 "
	{ Hard wheat	131 "	200 "
El Hajeb . . . . .	{ Soft wheat	138 "	196 "
	{ Hard wheat	148 "	208 "

At Marrekech the period between earing and ripening is lengthened by irrigation.

## 11. — Resistance to rust.

For rust of the leaves the regions may be classed in the following order of decreasing resistance: El Hajeb and Sefrou — Rabat — Marrekech.

On the other hand, for rust of the husks the classification is: El Hajeb and Sefrou — Marrekech — Rabat.

Here too irrigation has an influence as it maintains a certain humidity on the surface of the soil which favours the development of cryptogamic diseases of the leaves even when the ears are not attacked.

### III. — VARIATIONS IN LOCALITIES OF VARIETIES OF SOFT WHEATS NOS. 335 - 374 - 386 - 422 - 423 - 426 IN COMPARATIVE CULTIVATION AT VERRIÈRES (FRANCE) AND RABAT (MOROCCO).

#### 1. — Height of the plants.

Very important determination cannot be deduced from the length of the straw; it is generally dependent on varieties at Verrières and at Rabat chiefly on the distribution of rainfall during the year

#### 2. — Characters of glumes.

(a) *Length*. — The length of glumes from ears harvested at Verrières is only very slightly different from that of ears harvested at Rabat, except with regard to: soft wheat 374 in which the length of the glume is more than 2.3 mm, the soft wheat 422, on the contrary, has a glume less than 1 mm.

The others only differ by a few tenths of a millimeter more or less.

(b) *Size*. — The above does not apply with regard to size. All the glumes of wheats grown at Rabat are smaller. This difference has varied from 1.2 mm to 1.5 mm which represents a diminution of  $\frac{1}{10}$  to  $\frac{1}{5}$ , in size at Rabat as compared to Verrières.

(c) « *Shoulder* ». — The length of the « shoulder » of the glume follows the variation in the size of the glume. It is shorter with the glumes of wheats grown at Rabat except for the variety 423 where this difference may be considered as nil, being only 0.1 mm. The other varieties show an average of 1 mm less at Rabat than at Verrières.

(d) *Length of the teeth*. — Very little difference has been observed in the length of the teeth, it is identical in the varieties 386 and 422, the teeth are 0.1 mm longer at Rabat in the varieties 426 and 423, 0.2 mm in the variety 335, and 0.6 mm in the variety 374. The teeth are therefore, generally longer at Rabat than at Verrières.

(e) *Length of the inner awns (from the 4th spikelet)*. — The difference in length in this case is variable at Rabat, positive for the varieties 335 — 374 — 422 — 423; negative for the varieties 386 and 422. The inner awn is, therefore, on an average, longer at Rabat than at Verrières. The variation ranges between — 1 mm to + 1.7 mm.

(f) *Length of the inner awns (from the top of the ear)*. — All the varieties have longer inner awns except varieties 426 and 386 which have shorter inner awns at Rabat, namely 0.5 and 2 mm respectively. The differences vary from 17 mm. for soft wheat 335 to 1.5 mm for the soft wheats 422 and 423.

### 3. — Weight of the grain.

It is generally greater with varieties cultivated at Rabat, the difference varying from 0.5 to 1.3 g.

### 4. — Duration of vegetation.

The period between sowing and earing is much longer at Verrières than at Rabat for all varieties, while the period between earing and ripening may be said to be identical. In fact, the total duration of vegetation is longer at Verrières than at Rabat where it varies from 156 to 185 days according to the years and the date of sowing, while at Verrières it varies from 225 to 300 days for the same varieties and the same years.

### 5. — Resistance to rust.

Generally dependent on the variety at Verrières; at Rabat it greatly depends on the hygrometric condition of the air during the critical period of vegetation when the plant is in a receptive state.

## CONCLUSIONS.

To sum up, when a variety of wheat adapted to a given climate is grown in a warmer, drier climate the following modifications are observed:—

Diminution in the average weight of a ear and the weight of 100 grains.  
Loss of colouring in the varieties with red ears and an increase with varieties with black ears.

Increase in length of the hairs and teeth of the glumes and inner awns.

Diminution in the thickness of the straw wall.

Shortening of the rachis which causes an increase in compactness.

Diminution in the size of the glumes and inner glumes, adding to the general impression of lengthening.

Diminution in the duration of vegetation.

The reverse phenomena are observed in the varieties adapted to warm dry climates when cultivated in regions with a greater rainfall and a colder climate.

## IV. — SUMMARY.

The minute observations accumulated during 12 successive years have shown that the organs generally considered to be stable have presented, in Morocco, appreciable variations according to time and locality, the most apparent

being in: the awns, the spines of the teeth, the colour and the thickness of the straw.

These modifications are more or less marked according to varieties.

The variations observed, in time in the same surroundings, are manifested in various ways without any apparent rule and appear to be determined by the conditions of humidity in the locality observed.

The variations according to locality are more regular and consist principally in a constant, but irregular lengthening which appears to be determined by dryness and more or less in proportion to the extent of the want of humidity. The nature of the soil and irrigation, however, can modify the influence of climate in one direction or the other. Their influence is shown chiefly in the dimensions, the arrangement, the colouring and the various ornaments of the different organs observed.

In a locality with poor soil and a dry climate, for example, the general height of the plant and thickness of the straw wall diminishes; the black pigmentation and the villosity is accentuated also the compactness of the ears, the awns and teeth become longer; the awns become straggling, differences in section are shown and the spikes are modified; the glumes open more easily which is favourable to illegitimate fecundation etc..

These variations are sometimes so profound as to change the aspect of the variety. The biological characters are also affected, such as precocity and resistance to diseases (rust).

These variations are not, however, hereditary, even under the cumulative influence of the same surroundings and the plants recover their initial peculiarities when again cultivated in the place where they were originally produced. The secondary characters, however, (see « *Etude de quelques caracteres secondaires de l'épi* » by EM. MIEGE, 1930.) are preserved integrally in a variety in whatever surroundings the plant is cultivated, which has been verified in numerous varieties and in very different surroundings.

Two opposite phenomena have also been observed, according to varieties:—

(1) At the commencement of the introduction of a pure line, a general and more or less prolonged diminution in vigour, height and yields, correlated with certain morphological modifications, up to the time of stabilisation.

(2) On the other hand, an increase in vigour, size, etc. shown by a kind of general improvement and heterosis which persists for several years or decreases progressively up to the stabilisation of the type that remains superior or equal to the original specimen.

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## REVIEW OF THE MORE IMPORTANT PUBLICATIONS ON RUBBER CULTIVATION ISSUED IN 1934 \*.

(1st Part).

### GENERAL CULTIVATION

A short account of the development of new methods in rubber cultivation was given by HOLDER (1). He emphasizes the progress made in selection and tapping

### PLANTING AND NURSERY SYSTEM.

In tea culture the method of selecting in the nursery the largest and strongest plants for planting out is a general practice. SLEESWYK VISSER and VOLLEMA in Java tried this method with rubber plants (2).

In January 1931, 100 of the largest nursery plants with an average height of 344 cm and an average circumference of 110 mm (group A) and 96 of the smallest nursery plants with an average height of 240 cm and an average circumference of 70 mm (group B) were planted out. Three years later, in January 1934, the two groups were measured again. The surprising result was that the average height and the average circumference were practically the same in both groups, viz. in group A height 829 cm and circumference 272 mm and in group B height 833 cm and circumference 262 mm. "The original differences in the nursery have disappeared. Therefore no noticeable connection exists between the growth in the nursery and that in the field, i. e. the correlation between these two phenomena is small — ...". "Nursery selection applied in the same manner as in tea culture, i. e. by planting out the heaviest plants with the object of obtaining a specially strong growth in the plantation, will serve no useful purpose" (2).

### PLANTING DISTANCE AND THINNING OUT

GONGGRIJP (3) gave information about an experiment with budded trees of 11 different clones, planted at distances of  $3 \times 3$  m.,  $4 \times 4$  m.,  $5 \times 5$  m.,  $6 \times 6$  m. and  $7 \times 7$  m (the number of trees per hectare is respectively 1,110 — 625 — 400 — 278 and 204). The trees were planted in 1927; in 1934 records

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\* For previous Reviews, see this *Bulletin*, Nos 6 and 7, 1934.

\*\* *Tec.* 9 *Ingl.*

were made of average circumference, average bark thickness, number of tapable trees and yield. These were as follows:

TABLE I. — *Results of the experiment of GONGGRIJP.*

Planting distance . . . . .	3 × 3m.	4 × 4m	5 × 5m.	6 × 6m.	7 × 7m.
Number of trees per hectare . . . . .	1,110	625	400	278	204
Average circumference (in cm) . . . . .	53.2	57.1	59.2	63.2	64.5
Average bark thickness (in mm) . . . . .	6.6	7.3	7.7	7.9	8.4
Percentage tappable trees . . . . .	59 %	75 %	91 %	97 %	99 %
Yield in 1933, in kg per ha . . . . .	460	469	411	348	293

The records of the following years will be watched to get a reliable impression of the advantages and disadvantages of the different planting system.

The range of variation in yield is in budgrafts of the same clone, of course, considerably smaller than in seedlings of the same tree. Thus thinning out according to the yield is a more efficient practice with seedlings than with budgrafts. CRAMER (4) points out that the average yield of clonal seeds (i.e. seeds of the same tree or of the same clone) is generally lower than that of the budgrafts of one clone, but the 25 per cent best seedlings give a higher yield than the 25 per cent budgrafts, in consequence of the wider range of variation in the seedlings. If it is therefore possible to thin out the clonal seedlings in such a way that only the 25 per cent best ones are retained, it will be more profitable to plant clonal seeds than budgrafts. CRAMER thinks that it may be possible to carry out such a scheme, at least approximately. He proposes to try it in the following way. About 300 trees will be planted per acre (i.e. 750 per hectare), for instance at a distance of 10 by 15 feet. "As soon as the seedlings are developing into true trees, let us say after three years, we would submit them to an experimental tapping. Mr. MANN of the R.R. I in Kuala Lumpur has shown, that when we tap the trees for ten days and measure the yield for the last five days, we have a true measure for their productivity. We can rest them again for half a year and apply then a second tapping test. According to these two tests the poorest yielders can at this stage be removed, say 20 to 25 per cent of the total number of trees. Repeating continuously the selective thinning out during our further commercial tapping we can arrive at a final stand for the old rubber of say 70 trees per acre 25 per cent of the original stand" (CRAMER). The author confesses that in thinning out we cannot go by yield alone, too large open spaces must be avoided, and so we will never succeed in having only our very best 25 per cent, but he thinks it possible that the trees kept will correspond to say the 30 per cent highest class and give a yield higher than that of the budded trees.

Instructive graphs of the production of seedlings and of budgrafts before and after thinning out 50 per cent of the trees by removing the poorest yielders were given by MARCHAL (5).

## INTERPLANTING.

Different rubber-estates in Java made a trial with soya-beans as a catchcrop in young rubberfields. The Rubber Experiment Station also carried out an experimental planting in a series of plots. VOLLEMA published a report on these experiments (6).

On three of the six plantations the soya-crop was altogether a failure with practically no yield, on the three other estates the yield was respectively 100 kg, 200 kg and 837 kg per ha; in the experimental field of the Experiment Station a yield of 400 kg per ha was obtained. The author draws the following conclusions from these experiments: the soya-bean is not a strong plant, it requires a porous soil, is liable to attacks by insect pests, especially by the *Agromyza* fly, and to its growth being hindered by the shade of the trees, it is easily damaged by drought during the period of growth and by rain at the time of ripening; as a catch crop in young *Hevea* fields it can only give satisfaction in level, open, young rubberfields on a porous soil and in a climate with a pronounced dry season; it can only be planted once a year, viz. at the end of the rainy season, so that the crop ripens in the dry season.

## UPKEEP OF THE PLANTATION, MANURING AND GREENMANURING.

VAN HEUSDEN (7) discussed the different systems of upkeep of the fields.

The clean weeding system was long adhered to in Malaya, and the change into the Birkmoose or forestry system was a sudden one and was, it may be said, a revolution. In the Netherlands-Indies the evolution in the methods of upkeep was a more gradual one; clean weeding was given up many years ago and was replaced by the application of soil preserving leguminous plants, a system which was afterwards more or less gradually converted into a moderate forestry system with many variations from a modified covercrop system, in which the leguminous plants play the main rôle and non-injurious weeds are allowed to grow, to a true forestry system in which the leguminous plants play a less important rôle.

What the ideal undergrowth is in rubber-fields it is not easy to say, but it has become apparent that, in judging the effect of a special plant, we have to take into consideration the part above the soil as well as the roots in other words, the ideal plant must have a well developed system of branches and leaves, in order to shade the soil and to afford a humus yielding layer of leaves and it must have a root system which will not interfere with the rubber trees. In the last few years we have begun to attach more importance to the last mentioned requirement and to watch more closely the intercrops from the view point of root competition. Intercrops, considered hitherto as being only useful, have been found to exercise under special circumstances a growth-retarding influence. The experiments of SANDERSON and HAINES in Malaya have demonstrated that leguminous plants, which may have an excellent influence in old rubber fields,

have sometimes a growth retarding effect in young fields, as a consequence of root competition.

It is in view of these facts that VAN HEUSDEN advised leaving the soil after the clearing of the forest for a few years uncovered, at least if there are no special reasons for planting cover plants, such as if there is a great risk of soil erosion, and in this case the planting of a cover crop immediately after the clearing of the land is indicated. Two plants are at present much used for this purpose, viz. *Mimosa invisa* and *Momordica charantia*. They are often sown together; the advantage of this combination is that, if the *Mimosa* dies off in the dry season, the *Momordica* takes its place, while in the wet season *Mimosa* develops again and suppresses the *Momordica*. The soil improving qualities of the two plants combined is greatly recommended.

HOLDER (1) also supports the planting of *Mimosa invisa* as a cover, immediately after the preparation of the land, on forest land as well as on alang-alang land.

In employing shrubby leguminous plants, root competition is more to be feared than in employing creeping ones, but nevertheless VAN HEUSDEN considers that *Leucaena glauca*, and also *Tephrosia candida* and *Crotalaria anagyroides*, are under certain circumstances not to be rejected, on account of their great soil improving qualities.

The undergrowth, which develops spontaneously when the forestry system is applied, differs greatly on different plantations; it depends on the original character of the soil and the way in which the soil has been managed. The plants, which prevail in the undergrowth on the plantations in Java, are in most cases *Melastoma malabathricum*, wild banana, different species of *Ficus*, *Achrasa megalocheilos*, and a *Merremia*-species; *Hevea*-seedlings also appear generally most abundantly; grasses are always present but they generally play a secondary rôle. In fields where such a vegetation appears the only attention necessary seems to be to keep the vegetation low. Exact experiments to decide what is the influence on the growth of the rubber trees are still lacking, but the general opinion seems to be that such a vegetation has a good effect on the growth of the rubber, provided that a regular mixture of different species is present, no special one predominating. In cases where luxurious vegetation of grasses develops, it is absolutely necessary to suppress it. The author suggests using for this purpose the green manure plant *Centrosema pubescens* giving it an opportunity to climb, for instance, by placing sticks, or applying mineral manures.

The question of obtaining a suitable undergrowth by applying the "forestry method of cultivation" on Malayan plantations was discussed by HAINES. The difficulty is, that in many cases — and especially on soils which have deteriorated — the natural growth mostly or wholly consists of undesirable weeds.

To meet this unsatisfactory condition, a system of interplanting leguminous shrubs or even trees has been applied successfully in Java and Sumatra. In Malaya this has not been done, because in this country the deteriorated soils do not allow a satisfactory growth of leguminous plants. The system to be followed here — as described by HAINES — is to let all the weeds grow at first



and, as these weeds belong mostly to the class of undesirable, ones, to apply a careful control, gradually removing the worst and leaving the less noxious ones.

On poor soils, or soils deteriorated by soil erosion, the commonest weed, which generally predominates, is bracken (*Gleichenia linearis*). Another very common weed on such soils, especially on the more acid and heavier soils, is stagmoss (*Lycopodium cernuum*). These weeds are allowed as a first stage of the development of undergrowth, but they are not allowed to remain alone for long, and after some time they are beaten down regularly, until seedlings of other plants begin to appear. When this stage has been reached, selective weeding must be applied. "In the beginning this takes the form of pulling away stagmoss or beating down bracken away from shrub seedlings so that the latter have a good chance to survive. Then for one or two rounds these shrubs can be slashed or pruned at from 1 to 3 feet from the ground to induce a spreading habit of growth and to keep the line of vision clear. Finally the shrubs of larger growth (say 1 inch diameter stem and upwards) are taken out.

As regards the way to deal with the debris, HAINES considers the ideal procedure to leave it until it has lost all springiness, then to crush it so "that it breaks up and is close to the soil". "In the case of large amounts of bracken from clearing operations, it is preferable to bring this crushed material into heaps (or contour bunds) so that moisture is retained. Alternatively it may be placed in silt pits".

Under the weeds, which must be condemned, the author mentions grasses of a tufty growth such as carpet grass (*Axonopus compressus*) and those of great vigour like *Ischaemum muticum*, common in coastal districts. Also the sedge (*Scleria multifoliata*) is usually removed. In a short article (9) AKHURST described the successful application of slashing down the stagmoss and the "Singapore rhododendron" (*Melastoma polyanthum*). It was found that after this operation a number of other jungle plants were sprouting underneath and with the removal of the undergrowth these flourished quite well. The appearance of wild game in the rubber fields is one of the drawbacks of the "forestry system". In West Java a serious case of damage by porcupines (*Hystrix javanica*) was recorded (10). On the Miramare estate these animals destroyed the bark of some 15 % of the rubber trees, eating it away all round, from the soil level up to a height of some 60 cm.

A contribution to our still inadequate knowledge of the influence of green-manuring plants was afforded in the progress report of GONGGRIJP (3) in which the experiments in the Experimental Gardens, Polonia (Medan, Sumatra) are described.

At the end 1927 budgrafts of different Avros clones were subjected to a trial. In 6 series of plots the following systems were tried.

- (a) a cover of *Calopogonium*, *Pueraria*, *Mimosa* and *Centrosema*];
- (b) as before, but the cover was buried every year until May 1932;
- (c) no cover, regularly weeded until May 1932, when a mixed undergrowth developed;
- (d) *Leucaena glauca* interplanted;
- (e) clean weeded;

(f) clean weeded and manured every year with sulphate of ammonia (3 kg per tree in 5 years).

The soil is sandy clay. In July 1934 the average circumference of the trees was exactly the same in the plots (a), (b), (e), and (f), viz. 69 cm., it was 68 cm in the plots (d), and 56 in the plots (c). It is thus apparent that on these fertile soils no effect whatever was obtained from the application of green manuring plants (a), (b), (d), nor from sulfate of ammonia (f); the grass in (c) had a retarding effect so that in 1932 the circumference of the trees was 79 % of that of the trees in the plots (a), but after a mixed undergrowth was allowed to grow up (in 1932) the growth of the trees increased so that in 1934 the of the circumference was 81 %.

WESTEROP (11) discussed the application of mineral manures and mentioned different cases in which a good effect was obtained.

#### TAPPING.

As SHARP (12) pointed out, we are still rather ignorant about the correct proportion between the period of tapping and the period of rest in the ABC systems and also about the proper length of the tapping period. Generally the proportion 2 (tapping period) to 1 (period of rest) is adopted but we are by no means sure that this gives the best results. The same two questions about length and proportion of the periods of tapping and rest arise in the so called "double three" or Sunderland system. The experiments and investigations on which Sharp reported are a contribution to greater knowledge of these questions. These experiments were the following:

A series of 8 different tapping systems was carried out on Seven Miles Estate (Malaya):

- (a) ABC-system (i. e. the period of resting is twice the tapping period) with 3 months alternate-daily tapping against 6 months rest;
- (b) the same, but 5 months against 10 months;
- (c) the same, but 7 months against 14 months;
- (d) Sunderland-system (two cuts on opposite sides tapped every third day) 3 months tapping, 3 months rest;
- (e) the same but 5 months tapping, 5 months rest;
- (f) the same but 7 months tapping, 7 months rest;
- (g) double four system (two cuts on opposite sides tapped every fourth day);
- (h) alternate daily tapping.

\* These 8 plots were repeated 6 times.

If it is assumed that there are 360 tapping days in a year, each tree is tapped in the plots (a), (b), (c), on 120 days with one cut, in the plots (d), (e), (f), on 60 days with two cuts, in plot (g), on 90 days with two cuts, in plot (h), on 180 days with one cut; thus the trees of plots (a), (b), (c), (d) and (f), receive 120 cuts in a year, the trees of plots (g) and (h), receive 180 cuts.

The total bark consumption in one month was 6 inches in the ABC tapping, 8 inches in the Sunderland system and 9 inches in the "double four" and the "alternate daily" systems. The yield obtained per acre (in dry rubber was as follows percentage indicated of the yield obtained in the plots (g): (a) (ABC 6—3), 527, 4 lbs (74,5 %)—(b) (ABC 10—5), 514,9 lbs (72,7 %)—(c) (ABC 14—7) 489,3 lbs (69,1 %)—(d) (Sunderland 3—3), 429,5 lbs (60,7 %)—(e) Sunderland 5—5), 467,9 lbs (66,1 %)—(f) (Sunderland 7—7) 427,9 lbs (60,4 %)—(g) (Double-four) 800,1 lbs (113 %)—(h) (alternate-daily) 707,9 lbs (100 %).

A very instructive graph is given by SHARP of monthly yields of the different plots as percentages of the "alternate-daily" system. The results mentioned, combined with the results of the tapping costs are summarized as follows :

(1) The ABC tapping systems show a loss of 28 % of crop and a saving of 8 % in tapping costs.

(2) The Sunderland system shows a loss of 38 per cent and a saving in tapping costs of 11 %.

(3) The double-four system shows no loss in crop but a saving in tapping costs of 25 % duration.

(4) The increase of the periods of rest and tapping above 3 months did not give an increase in yield.

In a lecture (13) SHARP commented on the results of the experiments on Seventh Mile Estate, combined with results of ABC - Sunderland - and double 4 - systemes on other estates.

A considerable amount of data were gathered on the effects on yield of changing over from AD (alternate daily tapping) to ABC (period of tapping being equal to twice the resting period). The very interesting results of this investigation were given by SHARP in the form of a graph which gives the following approximately accurate figures:

TABLE II. — Yield on ABC tapping as % of the yield on AD tapping.

yield per acre on A D. tapping . . .	700 lbs	600 lbs	500 lbs	400 lbs	300 lbs
ABC: 24 months tapping { 1st year	113	121	130	143	165
12 months rest. } 2nd "	—	104	114	127	147
ABC 12 months tapping { 1st year	—	116	129	143	165
6 months rest. } 2nd "	—	119	134	160	—

The most striking item in these figures is, that the higher the original yield the smaller is the increase in going over from AD to ABC-system, or in other words; the improvement experienced by going over to the ABC system is inversely proportional to the original yield when tapped AD.

Another interesting fact is, that almost the same increase is obtained after 6 months as after 12 months rest: the extension of the period of rest from 6 months

to one year has no beneficial effect a conclusion that was also reached in the experiments of SHARP mentioned before. But this does not mean that 6 months is necessarily the best period. The only thing, which can be safely said, is that a period of one year is too long.

The same subject — the effect of the length of the period on the yield — was also investigated by GONGGRIJP (3), but with another periodical system, namely the ABC system in which the period of rest is twice as long as the tapping period. The following systems were tried (1) 2 weeks tapping and 4 weeks rest, — (2) 3 weeks tapping and 6 weeks rest — and (3) 4 weeks tapping and 8 weeks rest. The rubber trees were budgrafts of different clones, planted in 1927 and tapped from August 1933 to June 1934.

The yield was in kg per ha: (1) 444 kg — (2) 417 kg and (3) 389 kg, or in percentages 114 % — 107 % and 100 %. The short-period system gave the best results.

In another experiment one AD system and two ABC systems were compared (1) AD system 1 month daily tapping and 1 month rest — (2) ABC system 1 month daily tapping and 2 months rest — (3) ABC system 8 months tapping every other day and 4 months rest, followed by 12 months tapping every other day and 6 months rest, followed by 24 months tapping every other day and 12 months rest. Budgrafts planted in 1927, tapped from August 1933 to June 1934. The yield was in kg per ha (1) 548 — (2) 377 — (3) 399, or in percentages (1) 100 % (2) 69 % — (3) 37 %.

In the third experiment an AD system and an ABC system were compared (1) AD one month daily tapping and one month rest — (2) ABC, 1 day tapping and 2 days rest with increased bark consumption (25 mm per month). Budgrafts planted in 1927, tapped from February to June 1934. The yield was in kg per ha (1) 242 — (2) 213 — or in percentages (1) 100 — (2) 88.

In considering the results of these experiments (3) it is clear that with young budgrafts the short period gives much better results than the long period, it is especially obvious in the following —

ABC 1 day tapping, 2 days rest 128 % yield percentages

ABC 2 weeks tapping, 4 weeks rest 114 % yield percentages,

ABC 3 weeks tapping, 6 weeks rest 107 % yield percentages,

ABC 4 weeks tapping; 8 weeks rest 100 % yield percentages,

An analysis of the different tapping systems was given by VAN DER ZYI, and VAN HARREVELD (14). They proposed the use of the symbols: (*h*) (height) the total vertical length of the panel; (*t*) number of tapping panels, (*s*) the number of cm of bark, measured vertically after 30 tappings, (*m*) total number of months needed for one tapping of the whole tree, (*p*) the average number of days which corresponds with 1 tapping if 120 tappings are done in one year, (*p*) is 3. The connection between these different factors is as follows

$$h = \frac{1}{t} \times s \times m \times \frac{1}{p}.$$

Which formula means: the tapping height is directly proportional to the vertical thickness of the tapping cut and the number of months needed for one tapping of the whole tree, and is inversely proportional to the number of tapping panels and the average number of days which corresponds with one tapping.

It may be recalled here that according to the investigations of MAAS (1925) the average vertical thickness of one tapping cut is about 5.4 cm in daily tapping, 6.2 cm in every-other-day tapping, 7.0 cm in every-third-day, 7.6 cm in every-fourth-day, 8.1 cm in every-fifth-day and 8.2 cm in every-sixth-day tapping.

The formula  $h = \frac{1}{t} \times s \times m \times \frac{1}{p}$  is considered practical for figuring out what height must be given to the tapping panel when a lapse of 8 years (96 months) is considered necessary for bark renewal with a given tapping system.

One example may be given: if the system is an ABC system with 2 weeks rest and one week tapping, with a tapping cut over half the circumference and with a vertical bark consumption of 6 cm in 30 days,  $t$  is 2,  $s$  is 6,  $m$  is 96, and  $p$  is 3; the general formula is in this case  $h = \frac{1}{2} \times 6 \times 96 \times \frac{1}{3} = 96$ .

The tapping height must therefore be 96 cm if the bark will be consumed with the system mentioned in 8 years.

In these years of overproduction there is a tendency to increase the number of days of rest and to decrease the number of tapping days or, in other words, to increase the  $p$  (the average number of days which corresponds to 1 tapping).

The considerations of van der Zyl and van Harreveld were criticised by Gonggrijp (15). He pointed out, that we are not sure that 8 years ( $m = 96$ ) is the minimum time needed for bark renewal: further experiments may prove that this figure, which was found in experiments with trees badly treated in the first years of rubber cultivation, is lower for trees which have not been subjected to those drastic tapping systems.

Another weak point, mentioned by GONGGRIJP in the considerations of VAN DER ZYL and VAN HARREVELD, is the premise that in daily tapping a monthly bark-consumption (thirty tapping days) of 6 cm (measured vertically) must be accepted, and in every-other-day tapping a consumption of 6.2 cm on two months (thirty tapping days), etc. At present the bark consumption on most plantations is smaller and in an experiment (1933) of the A. V. R. O. S. Experiment Station it was found that with a monthly bark consumption of 6 cm daily tapping only 2 % more rubber is obtained than with a bark consumption of 5 cm and with a bark consumption of 5 cm. only 2 % more than with a bark consumption of 4 cm. It must therefore be considered as not economical to use more than 5 cm bark and VAN HARREVELD and VAN DER ZYL are wrong in basing their calculations on the figures mentioned.

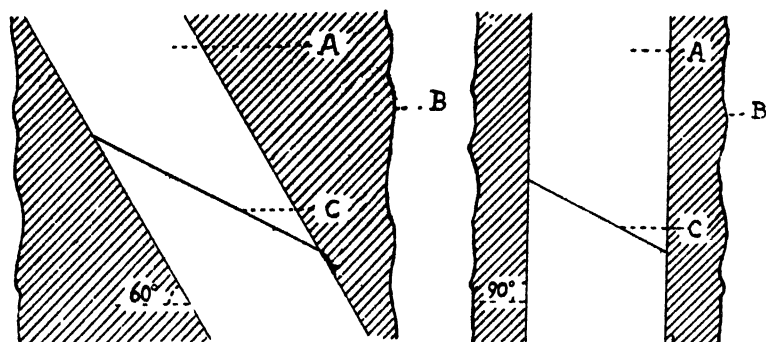
The difference in yield obtained from low and from high parts of the seedling stem has been recorded more than once. The figures published by MAAS (*Archief voor de Rubbercultuur* 9e jaargang pp. 85-91, 1925) learned that the production decreases about 17 to 18 % when the cut is made one foot higher up the

stem; for a tapping height of 1, 2, 3, and 4 feet above the soil we find yield percentages of 100 %, 82 ½ %, 68 % and 56 %

For budgrafts very few data about the yield proportion between high and, low cuts are available GONGGRIJP reported (15) in two experiments on this subject:

(a) The yield, obtained from budgrafts of the AV 49 clone, planted in November 1926, tapped at heights of 0 to 50 cm, 50 to 100 cm and 100 to

*Arrangement of tapping panels.*



Left = New method (spiral panel)  
 Right = Old method (vertical panel)  
 A, A = Tapping panel  
 B, B = Trunk  
 C, C = Tapping cut

150 cm was investigated Tapping was done from March 1931 to May 1934; the AD monthly system (1 month tapping 1 month rest) was used The rate of yield in percentages of the yield of the lowest part was as follows:

	first 10 months	last 10 months
Highest part . . . . .	81 %	100 %
Halfway . . . . .	90	101
Lowest part . . . . .	100	100

It thus seems to appear that the difference in yield between the higher and the lower parts of the budgraft decreases quickly when the tree gets older.

(b) An investigation into the yield of budgrafts of clone AV 50 tapped at different heights (0-30 cm, 30-60 cm and 60-90 cm) The budgraft had been planted in the last months of 1920. A fourth group of these budgraft was used to investigate the yield obtained when the tapping-panel was not

made running vertically as usual but in a spiral round the tree with an inclination of 60°, as indicated in the following sketch.

The tapping of a panel running in a spiral was tried, because in such a system the number of *new* latex-vessels which are out by each following tapping, is larger than in the case where the ordinary vertical panel system is followed.

The yield percentages obtained in one year (May 1933 to 1934) were as follows:

	Vertical panel			Spiral panel
Height of the 1st cut . . . . .	60 cm	90 cm	120 cm	60 cm
Yield percentage . . . . .	100 %	95 %	93 %	109 %

The expectation that the spiral panel would give a higher yield than the vertical one is thus confirmed. The difference in yield between the high and the low cut found in this clone (AV 50) is much smaller than the difference found in the experimental tapping with clone AV 49 (first 10 months) mentioned previously.

The influence of the thickness of the cut was investigated by Gonggrijp by the following experiment (15).

The field contained a mixture of budgrafts of different clones, planted at the end of 1927; the AB-monthly tapping method (i. e. one month tapping, one month rest) was used; tapping was recorded from August 1933 to June 1934. The bark consumption was per tapping month (1) 4 cm, (2) 5 cm, (3) 6 cm. The yield was as follows. Yield in kg per hectare: (1) 505 (2) 538 (3) 522. Yield in percentages: (1) 94 % (2) 100 % (3) 97 %.

In another experiment, in which the rate of yield between a  $\frac{1}{3}$  cut and a  $\frac{1}{2}$  cut was investigated the well known figure of 80 % was confirmed.

The experiments of GONGGRIJP included investigations into the new «Sunderland» (or «Double three») system. It may be remembered that in the Sunderland system two cuts over  $\frac{1}{2}$  circumference on opposite panels are applied at heights of 65 cm and 125 cm; tapping is done every third day, after a certain tapping period, say 6 months, a similar period of rest follows. Bark consumption is 25 mm per tapping month (150 mm per year). GONGGRIJP compared the yield obtained by this system and by the AB monthly system. The trees used were budgrafts of the clones AV 59, 50 and 152, planted in 1928; tapping was done from December 1933 to June 1934. The yield was as follows:

	A B monthly system	Sunderland system
yield in kg per hectare . . . . .	387	222
In percentages . . . . .	100 %	57 %

The yield obtained by the Sunderland system is not encouraging. It is true that with this system only  $\frac{1}{6}$  of the total number of trees are tapped every day and with the AB system  $\frac{1}{2}$  of the total number, or three times as many. This means that only  $\frac{1}{2}$  of the number of tapping coolies are needed, but it must not be forgotten that the tapping work is much longer: for a two-cut system the work is about  $1\frac{1}{2}$  times as great as with a one-cut system and the number of coolies needed for the Sunderland system is therefore  $\frac{1}{3} \times \frac{3}{2} = \frac{1}{2}$  of the number needed for the AB-system.

A disadvantage of the Sunderland system is that the trees flow longer than when the AB system is used. This means that the tapping work lasts longer and that the percentage of lump and cupfilm is higher. An experiment with ABCD daily tapping, i. e. every fourth day tapping (with one cut over  $\frac{1}{2}$  circumference) on budgrafts was recorded by GONGGRIJP and SCHMOLE (15, 16). The budgrafts (of different AV clones) had been planted in the end of 1927 and were tapped from August to December 1933. The cuts made were thick, the bark consumption being 25 mm per month. The yield obtained was as follows:

TABLE III - Yield in kg per hectare.

		A B monthly	A B C D of the	A B monthly
1933	August . . . . .	12 kg	29 kg	57 %
	September . . . . .	55	49	51
	October . . . . .	15	13	90
	November . . . . .	55	53	96
	December . . . . .	57	56	98
1934	January . . . . .	59	51	86
	February . . . . .	60	50	
	March . . . . .	68	39	62
	April . . . . .	46	26	57
	May . . . . .	58	31	60
	June . . . . .	58	41	76
Total . . . . .		594 kg	468 kg	79 % of the A B monthly

A remarkable fact in this experiment is that the percentage of the ABCD-system increased considerably from August 1933 to December (from 57 % to 98 %) and seemed very promising, but after January the percentage decreased until April (57 %), in the last two months there was again an increase (76 % in June).

For an estimation of the value of a tapping system from an economic point of view not only the yield and the bark consumption, but also the time spent by the tapper must be taken into account. A few years ago MAAS (*Archief voor de Rubbercultuur in Nederlandsch Indie* Vol. 9, p. 179 (1925) gave information of the working time of the tapper in Sumatra. His conclusions were,



that the average time spent in tapping, collecting and walking was 19,6, 9,6 and 15,2 seconds respectively and that the greatest part of the actual time spent in tapping, is used for starting and finishing the cut, collecting the scrap rubber, etc., the length of cut making relatively little difference to the total time required for tapping.

SHARP investigated for Malaya the same question (17). He included 4 tapping systems in his investigation: the AD, the ABC, the Sunderland and the Double Four system; the average time spent by the tappers was as follows:

	A D	A B C	Sunderland		Double Four	
			Upper cut	Lower cut	Upper cut	Lower cut
Tapping sec. . . . .	43.2	38.3	37.7	41.8	37.9	41.4
Walking sec. . . . .	5.2	5.3	5.5		5.6	

This makes the average time for tapping one cut 40 seconds and for walking 5  $\frac{1}{4}$  seconds. There is a considerable variation in the speed at which the tappers work, the fastest worker completing his task in approximately three-fifths of the time of the slowest. There is a close relationship between the girth of the tree and the time spent in tapping; with a girth of 30 inches tapping time was 29,4 seconds; with a girth of 40 inches 38,1 seconds; 50 inches girth 41,9 seconds; 60 inches girth 47,5 seconds; 60 inches girth 55,3 seconds. Taking the collection and walking together the average time for collection in single and double-cut work is 10 seconds and 16,3 seconds, an increase of 63 per cent.

#### REPLANTING.

VOLLEMA (18) made an extensive research into the most rational way to rejuvenate rubberstands.

The regulations concerning Rubber Restriction allow each estate a rejuvenation (or replanting) of no more than one fifth of the whole area during the years that the restriction is in force. It is therefore important to consider carefully what fields are to be considered for rejuvenation. There is a tendency to rejuvenate (or replant) preferably the lowest yielding fields, but this policy is not the most advisable, and the author gives the following advice. A field "only comes into account for rejuvenation when the natural conditions allow the expectation of a good growth of superior planting material". On less suitable soils or in an unfavourable climate rejuvenation or replanting does not pay.

The system of partial rejuvenation was already condemned by the author in a previous publication. His argument is that the harm the old trees do to newly planted ones is greater than the advantage which is reaped from them. The experiments described in the present publication confirm the opinion that

replanting, i. e. complete rejuvenation of the whole stand at the same time, gives the best results.

Before removing the old trees they are generally tapped by some drastic system for one to three years. The author investigated which of these drastic systems has given the best results. It is true that as long as the Restriction Scheme is in force the planter is limited in the quantity of rubber his estate is allowed to market, but the tapping of the old trees may be advantageous on account of the reduction of tapping costs.

The system the author considers the best is tapping with two cuts over  $\frac{1}{2}$  circumference every other day; the system of daily tapping with two cuts over  $\frac{1}{2}$  is too drastic and causes soon a decrease in production. The two cuts must be situated on either side of the tree with a reasonable difference in height. If it is unavoidable to make the cuts at one side, the distance must be at least 60 cm. Purposely tapping to the wood should be avoided, but, tapping wounds have not to be avoided so scrupulously as with ordinary tapping. With such a system about  $2\frac{1}{4}$  times the normal yield may be expected.

In areas where there are no parasitic root fungi the old trees may be cut under the root collar. Wherever root fungi are present the roots of the infected trees and one row of the neighbouring sound trees have to be dug out carefully and burnt, and the spot has to be surrounded by an isolating drain.

As the best planting distances are considered those which give 400 budgrafts or 400 to 500 seedlings per hectare. Plantholes have to be conical and about  $\frac{1}{2}$  cubic metres in size. Murray (19) published a progress report on the replanting operations on Dartonfield Estate "the object of this information being to give representative details and costs of replanting procedure for the interests of estate Superintendants contemplating this work".

In this report detailed information is given of the various operations such as lining and holing, dynamiting, cutting, stacking, burning, removing lateral roots, filling holes, cutting platforms, forking platforms, sowing cover crops, weeding, planting and upkeep of budgrafts, keeping drains open, constructing paths and steps, and fencing. An estimate of costs is given.

#### SELECTION.

##### (1) *General articles.*

The survey of the area planted with rubber in the Dutch East Indies on behalf of the Rubber Restriction brought to light interesting figures of the extension of the area planted with budgrafts and of the area in seedlings (20).

In the following Table the surfaces are rounded off in thousands of hectares.

It appears thus that on the estates in the Netherlands Indies about  $\frac{1}{4}$  of the total area has been planted with budgrafts and  $\frac{3}{4}$  with seedlings.

The East Coast of Sumatra has been more advanced than Java in the planting of budgrafts: about  $\frac{1}{3}$  of the rubber area has been planted with budgrafts.

TABLE IV — *Situation in January 1934*

	Budgrafts	Seedlings	Total
Java . . . . .	36 000 ha = 15 %	196 000 ha = 85 %	232 000 ha
Eastcoast of Sumatra . . . . .	94 000 ha = 31 %	207 000 ha = 69 %	301 000 ha
Rest of Sumatra and other islands.	12 000 ha = 20 %	48 000 ha = 80 %	60 000 ha
<i>Netherlands Indies</i> . . .	142 000 ha = 24 %	451 000 ha = 76 %	593 000 ha

The planting of budgrafts has been carried out principally in the years 1927 to 1931 on the East Coast of Sumatra (yearly about 15 000 ha were planted with budgrafts) and in Java principally in the years 1927 to 1929 (yearly about 6000 ha). The planting of budgrafts began to exceed the planting of seedlings on the East Coast of Sumatra in 1927 and in Java in 1928, but in 1933 in Java again more seedlings were planted (4 502 ha with seedlings against 2 862 ha with budgrafts). On the 1st of Jan 1934 the area in budgrafts amounted in Malaya to 69,498 hectares against 142 677 hectares in the Neth Indies. Cramer (4) estimated the area under budgrafted rubber in round figures as follows:

Java . . . . .	50 000 acres or 20 000 ha
Sumatra . . . . .	300 000 » » 120 000 »
Malaya . . . . .	200 000 » » 80 000 »
Indo-China . . . . .	90 000 » » 36 000 »
Various other countries . . . . .	5 000 » » 2 000 »
Total . . . . .	545 000 acres 258 000 ha

The author gave an interesting account of the present knowledge of our improved planting material, especially of the different clones of budgrafts.

The average yield per hectare for budgrafts is estimated by him as "at least twice the normal yield from common plantings", but Cramer adds "for the best clones planted by the best methods, one would think that an average of much more may be expected and that an annual crop of three-quarters of a ton (750 kg) per acre or even more seems quite probable". This estimate corresponds fairly well with the estimate made a few years ago by the Rubber Experimental Station in Java (see this Review, Year XV, no 7, p 300 T (1934), viz "in the 15th year a yield 4 times as large as that of the seedlings" i.e. a yield of about 200 kg per ha or 80 kg per acre. Cramer, however, is somewhat more conservative and expects such a yield only from the best clones planted by the best methods, and he expects only twice the normal yield, i.e. about 1000 kg per hectare on an average.

In the opinion of the author the careful choice of clones often does not receive proper attention. Each clone has its advantages and its disadvantages, and the planter must be very careful in considering what clone will give the best results and the highest yield under the conditions that prevail on his plantation. Planters sometimes attach importance to qualities which are indeed of secondary importance. For instance: clone AV 50 was at one time the favourite – the buds take easily, the growth in the first year is excellent, the budwood gives a high number of buds per yard, but when it comes to yield it is not equal to a clone like AV 152 that gives trouble in the beginning with failures in budding and requires a lot of pruning. Like AV 50 also AV 256 was for some time very popular, but for several years the yield remains at about the same level of 15 lb (6 kg) per tree. In deciding what clone to plant a planter must duly take into account the conditions which prevail on his plantation.

“ There are clones better suited to a dry climate, BD 5 for instance and there are others that are more wet-climate clones, like Avros 256 ”.

“ Some of our highest yielding clones, like Sabrang 24, do not offer the same certainty as the medium producers like avros 49 and 152 ”.

“ Among the Prang Besar clones there are early high yielders and others taking some time before reaching a high figure ”.

Among other interesting particulars about the characters of the various clones the following may be mentioned:

In a comparative test containing a series of Java, Sumatra and Malayan clones in Indo-China, Cramer found up till now, that Tjirandi 3 is the most vigorous grower. Tjirandi 1 seems sensitive to drought and it is considered probable, that it will show a heavy fall in yield under extremely dry conditions such as prevail in Indo-China (often 5 months without a drop of rain), but the very high yield of the clone during the wet season makes up for this.

The strength of the wood is different and some clones are especially liable to being injured by wind. Avros 36 was found to suffer so much from the wind that it was discarded for that reason on many estates. Also Tjirandi 1 has little resistance against wind. But storms do practically no harm to Avros 49 and 50.

In density of crown there is variation. Clones like Avros 50 and BD 5 have very open crowns. They are therefore very suitable for planting in mixed cultivation with coffee. Cramer mentions a case in Sumatra where coffee fields were interplanted with AV 50, planted 20 by 20 feet; the trees were 4 years old (girth about 15 in) but the coffee did not suffer from too much shading by the rubber; if the clone used had been Tjirandi 1 or Avros 152 the field would have been too densely shaded.

Clones also behave differently as regards liability to diseases.

AV 50 is well known to be particularly subject to pink disease (*Corticium salmonicolor*).

The time when the tree becomes tappable may differ a good deal in various clones. Tjirandi 1 is expected to be an early yielder, like Prang Besar 25, while Tjirandi 16 and BD 5 are much slower in coming up to a high level.

As regards suitability for being budded, Waringiana 4 has a bad reputation. The union of stock and scion takes place quickly with AV 50 and 152, while this process is slower with budgrafts of BD 5.

Our knowledge of the different characters of the various clones is not yet complete and CRAMER considers it advisable to divide the risk by planting several clones. "Generally speaking a number of at least 4 or 5 will offer a good distribution of the risk". He does not recommend the old system of mixing several clones in the same field. "When it comes to thinning out these mixed plantings, people realise that it would have been better to start from the very beginning with monoclonal planting". It is extremely difficult to remove one or two clones from such a mixture of eight or ten clones. A monoclonal field has not only advantages in the thinning out, but also in the tapping process; the tapping system can be exactly adapted to the clone and the tapper will always have the same quality of bark under his knife".

MAAS (21) gave a detailed description of the way in which the selection work is carried out on the Government Rubber Estates, ("s Lands Caoutchouc-bedrijf") in the Netherlands Indies.

The selection gardens cover at present an area of 256 hectares and contain about 350 clones, 260 being new (L. B. C. clones) whereas the others have been selected on other estates.

Originally 3754 mother trees have been kept under observation. After two years of observation 925 of these trees were selected and registered as L. B. C. selection trees.

The 260 best trees of these were finally kept as material for budgrafts. These best trees gave an average yield of 15 kg dry rubber per year and the highest yielder gave even more than 30 kg. The new clones are tested in row experiments and compared with well known clones. These new clones which are found to be the best are further tested in plot experiments.

The work on vegetative selection includes the investigation into the most suitable stocks and crowns. Crown budding may be made at a height of f. i. 2  $\frac{1}{2}$  metres; in this way a tree is obtained with a selected stock, a selected scion and a selected crown. The selected crowns may have specific resistance against mildew or wind; clone LBC 870 for instance is practically resistant to mildew.

After vegetative selection, generative selection is carried out and descendants of 18 crossings between selected trees have been obtained. Moreover a great number of so called clone seedlings will be tested. A number of clones have been planted out in isolated seed-gardens.

A complete report of the tapping results of some 100 clones will be given later. Some of the clones have now been tapped during 1  $\frac{1}{2}$  year. Clone LBC 1320 has drawn the attention by its remarkably high yield: planted in 1927 and tapped with ABC-system with two cuts over  $\frac{1}{4}$ , it yielded in the first tapping year 3  $\frac{1}{2}$  kg of dry rubber per tree, whilst for the second year a yield of 7 kg per tree is expected. This means that, as far experience goes, it produces nearly twice as much as the well-known clones AV 36 and AV 52.

A quite extensive and detailed description of selection work in general, especially of the work done in Sumatra and Java, was given by FERRAND (22).

(2) *Technique of budding.*

For a regular growing together of stock and scion it is important that no "die-back" of the snag takes place and that the callous which surrounds the cut surface of the stock grows vigorously. SHARP (23) reported on further investigations on the effect of the application of wound dressing and the effect of the slope of pruning. His conclusion is that a steep pruning cut produces a more rapid growth of the callous tissue over the snag; the optimum angle seems to lie at about 50°. The growth of callous in the untreated trees was definitely better than in the asphalt-kerosine treated trees.

(3) *Influence of stock on scion.*

We are still rather uncertain about the effect of the stock on the production of the scion. Though experience seems to indicate that this influence is not very important, the need of more exact knowledge is felt. The A. V. R. O. S. Experiment Station in Sumatra started the investigation of this problem (24). In this investigation different groups of seedlings are used as stock, viz.: (1) descendants of high-yielding clones, the seedling-progeny of which is, as a whole, a high yielding "family" — (2) descendants of high-yielding clones to be used as stock for scions of the same clone — (3) descendants of trees which have a very strong developed stem — (4) descendants of trees which seem to have a notable resistance against root diseases.

(4) *Variability in yield of budgrafts of one clone*

Barclay (25) have figures about the variability in yield of the individual budgrafts of the same clone. The total yield of the 10 % trees which gave the lowest yield, the total yield of the 20 % which gave the lowest yield, etc., was as follows:

Number of the trees	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	100 %
yield percentage of the total yield. .	5 %	12 %	20 %	28 %	38 %	48 %	59 %	71 %	85 %	100 %

(5) *Yield and other characters of the clones.*

It becomes gradually more apparent, that the yield obtained from young trees is not a reliable indicator of the yield which may be expected for later years. Different clones have been regarded as being not very productive on account of the experimental tapping of young budgrafts, but in later years some

of these clones have given very satisfactory yield figures. Such a case was reported by SCHWEIZER (26) from one of the LMOD-clones. This investigator therefore issued a warning to be careful in disqualifying a clone on account of low yield figures obtained from young trees.

Another piece of advice was to take care not to generalize about a clone on the basis of yield figures obtained on poor soils. There are clones which are excellent in production on good soil but unsatisfactory on bad soil. This is for instance the case with BD 10, also with AV 50, PR 5 and PR 9. Other clones are much less dependant on the quality of the soil. The poor yield which the first mentioned clones give on poor soil is not always accompanied with a poor growth; the bark growth may be quite satisfactory while the yield is low, a fact which shows that for a clone the yield is not under all circumstances proportional to the bark-growth. This fact was also emphasized, from another point of view, by RHODES and MANN (37), who determined the relationship which exists between girth and yield in the Malayan clones. A 44 and B 58. It appeared that the variation in girth is relatively smaller than the variation in yield. The actual relationship between girth and yield is expressed by the co-efficient of correlation which has a value of + 0,68 for clone A 44 and + 0,62 for clone B 58.

Yield figures obtained in Java in 1934 from different clones, together with figures obtained from the same clones in previous years have been compiled in the following list (27, 28, 29, 31, 32, 34, 35).

A description of tapping experiments on Malayan clones was given by MANN, BILLINGTON and KAIMAL (36). Budgrafts of selected mother-trees were planted out in Nov. and Dec. 1924 at a distance of 20 by 20 feet. Experimental tapping was commenced in January 1928 when the trees were about 3 years old (age being reckoned from the date of planting). In view of the tender age it was considered desirable to adopt a very light tapping system and to introduce frequent rest periods between successive tests. It was therefore decided to tap alternate days for one month (16 tappings) followed by one month of rest. Of the 21 selected clones the following are considered to be promising: A 44, B 58, and D 65.

Some clones were subjected by RHODES and MANN (37) to an investigation about yield response. It appeared that the different clones respond differently to the same tapping system. When a tree is tapped after a period of rest the yield increases during the first tapping days and, when a daily tapping system is applied the highest yield is generally obtained on the sixth day. There are exceptions, as for instance with clone B 58, which attains its highest yield only on the 9th day. The decrease in yield which follows is of a quite different character in different clones; for clones A 44 and B 16, for instance, the yield decreases very quickly, so that a period of 30 days tapping gives a daily average which is much lower than the average of a period of, say, 15 days; for such clones a shortening of the ordinary tapping period of 30 days is indicated. Instructive graphs illustrate the account.

In a short communication (30) the Experiment Station in West Java called the attention to the fact that some high producing clones show an important

TABLE V. — *Yield of different clones in Java, in kg per year per tree.*

Year	8	8 ½	9	9 ½	10	10 ½	11	11 ½	12	12 ½	13	13 ½	14	14 ½	15	15 ½
Djasinga 1	...	...	4.4	...	5.0	...	6.8	...	6.5	...	7.8	...	...	...	...	...
Limbung 1	...	...	...	...	...	7.5	...	7.0	...	8.5	...	...	...	...	...	...
Gedong Tapen 1	...	5.2	...	6.4	...	6.1	...	9.9	...	...	...	...	...	...	...	...
Lampongiana 1	9.0	...	8.4	...	6.8	...	7.3	...	...	...	...	...	...	...	...	...
"	6.5	...	10.4	...	11.0	...	8.1	...	7.3	...	...	...	...	...	...	...
Lampongiana 2	8.4	...	10.1	...	9.2	...	7.1	...	...	...	...	...	...	...	...	...
"	9.2	...	11.5	...	15.2	...	13.9	...	11.1	...	...	...	...	...	...	...
Lampongiana 4	6.6	...	7.4	...	8.1	...	6.2	...	...	...	...	...	...	...	...	...
"	5.3	...	7.1	...	7.3	...	7.0	...	5.9	...	...	...	...	...	...	...
Tjirandji 1	...	13.9	...	12.1	...	16.0	...	18.8	...	15.2	...	19.2	...	...	...	...
" II	...	5.9	...	6.0	...	6.2	...	7.1	...	8.0	...	7.7	...	...	...	...
" III	...	7.7	...	7.8	...	7.7	...	8.0	...	8.2	...	7.9	...	...	...	...
" VIII	...	7.2	...	7.4	...	8.0	...	8.2	...	8.9	...	9.1	...	...	...	...
" XVI	...	...	10.9	...	10.8	...	9.2	...	9.7	...	12.5	...	9.3	...	...	...
BD 2	...	...	7.0	...	...	7.9	...	8.2	...	5.7	...	6.0	...	6.6	...	5.9
BD 5	...	...	...	...	...	11.5	...	11.8	...	12.1	...	13.1	...	16.4	...	15.7
BD 5-A	...	...	...	...	...	...	...	...	...	9.9	...	12.1	...	13.9	...	12.0
BD 7	...	...	4.0	...	...	7.4	...	7.0	...	6.1	...	6.8	...	6.9	...	6.8
BD 10	...	...	7.6	...	...	8.6	...	9.1	...	8.1	...	9.6	...	9.9	...	9.7
BD 16	...	...	5.5	...	...	5.7	...	7.4	...	6.9	...	9.4	...	9.9	...	8.8
BD 17	...	...	4.9	...	...	5.6	...	7.0	...	6.3	...	8.6	...	9.4	...	9.4
Pl trots 2	...	...	9.2	...	7.2	...	8.9	...	11.7	...	15.6	...	15.8	...	...	...
" 3	...	...	7.6	...	7.0	...	7.8	...	8.8	...	9.7	...	11.9	...	...	...
" 4	...	6.2	...	6.4	...	6.5	...	7.7	...	7.4	...	7.5	...	...	...	...
" 5	...	...	6.6	...	6.1	...	6.1	...	5.6	...	6.1	...	5.0	...	...	...
" 6	...	...	6.6	...	6.0	...	6.7	...	6.2	...	6.8	...	6.5	...	...	...



decrease in production when the cut comes up to the place where bud and stock have grown together. In these cases it is advisable to leave the lowest 25 cm of the budgraft untapped.

's JACOB (33) described a quite promising clone, registered as "Kali Dje-roek 1". The budgrafts of the first series yielded in their 6th to 9th year 2.7, 3.5, 5.0 and 8.5 kg per tree. The second series of budgrafts gave in the 6th to 8th year 1.9, 2.4, and 4.2 kg. per tree.

Yield figures from commercial plantings in Malaya of buddings of proved clones from Sumatra and Java were published by MANN (38). The figures prove that the clones have given very satisfactory yields; "several of the older proved clones, especially the AVROS-clones, have exceeded expectations in these preliminary tests" (MANN).

TABLE VI. — *Yields from budded trees of proved clones in commercial plantings in Malaya.*

Age . . . . .	5 ½	6	6 ½	7	7 ½	8	8 ½	9	9 ½	10 years
AV clones (mixed) .	328	...	529	...	460	...	...	...	...	...
" " " .	387	...	666	...	507	...	...	...	...	...
" " " .	...	...	...	469	...	...	...	...	...	...
AV 49 . . . . .	491	...	764	...	1298	...	...	...	...	...
AV 152 . . . . .	487	...	727	...	1562	...	...	...	...	...
BD 25 and 10 . . .	...	404	...	...	...	...	...	...	...	...
AV 36 a. o. . . . .	...	370	...	...	...	...	...	...	...	...
AV 36 . . . . .	...	...	...	597	...	...	...	...	...	...
HAPM clones . . .	...	...	...	...	...	...	...	1213	...	1595
" " " . . . . .	...	...	...	...	...	...	...	...	...	1100
Older proved clones	...	...	...	...	...	...	...	1497	...	...

In this publication we find the same experience as mentioned by Schweizer in his paper on East Java plantings, viz. that some clones which are regarded as second class clones "are by no means useless or complete failures". In this connection the author mentions AV 33, 36, 52 and 80.

#### GENERATIVE SELECTION.

##### (1) *Technique of artificial pollination and results obtained.*

A detailed description of experiments with artificial pollination in Indo-china, preceded by an extensive survey of previous work on this subject, was given by ANGENOT (39).

First a comparison was made of the number of successful pollinations to be obtained with the method in which a plug of cotton-wool is put on the female flower after pollination, and the other method, in which the inflorescence after

pollination is enclosed in a muslin bag. The results were the same as those obtained previously by 's JACOB, i. e. both methods were about equally successful, but the method of the plug of cotton is to be preferred being simpler and cheaper. This method has also the advantage of being absolutely safe against illegitimate pollination; muslin bags do not afford absolute safety in this respect, because wind-pollination plays a certain rôle in the biology of the rubber trees - as found by 's JACOB - and pollen carried by wind easily slips through the meshes of the bag.

As regards the influence of the time of day, ANGENOT found that from 9 to 11.30 AM., from 1 to 3 PM. and from 3 to 6 PM. about the same success-percentage was obtained (16,9 %, 18,6 % and 17,2 %), while from 6 to 9 A. M. the success was a little smaller (10,1 %). It may be remembered, that's Jacob had equal success when working from 6 to 9 AM. as from 12 to 3 PM.

The difference in success, obtained in the pollination-work by the different coolies is important, it varied, for instance, in the auto-pollination work of AV 152 from 0,6 % to 3,2 %, in the pollination of AV 152  $\times$  AV 71 from zero to 36,2 %, etc.

The pollination-work was quite successful in the operations carried out at Bën-cui. Here AV 152 was pollinated with pollen of 5 other clones (success 4,8 %, 5,0 %, 6,0 % and 6,5 %), and was also auto-pollinated (0,2 %). Still greater success was met with at Long-thànk, where AV 50 was pollinated with pollen of 5 other clones (success 4,0 % to 13,6 %), AV 49 was pollinated with AV 50 (11,8 %) and AV was auto-pollinated (2,1 %).

These results may be considered as satisfactory when a comparison is made with the average percentage obtained by previous investigators MAAS 5,6 %, HEUSSER 10,9 %, 's JACOB 0,8 % (in 1929), MORRIS 6 % (cross-pollination) and 0 % (auto-pollination), etc.

In ANGENOT's work auto-pollination gave much lower percentage than cross-pollination (0,2 % to 2,1 % against 4,0 % to 13,6 %), which is in accordance with the results of HEUSSER and MAAS in Sumatra and MORRIS in Malaya; only 's JACOB obtained about an equal success in both cases (cross-pollination 5,9 % and auto-pollination 7,1 %).

The author considers it important to use for pollination experiments preferably trees of at least 4 or 5 years. Convincing data are not yet available to prove this statement, but there are strong indications.

The germinal power of the seeds obtained artificial pollination is rather low and varied between 0,0 % and 75 % (average 29,3 %). The dry season during ripening and the tender age of the trees may partly account for it.

PIERIS (40) gave a description of the technique of artificial pollination, as carried out on young budded trees at Nivitigalakele (Ceylon). The success-percentage was in 1932 7 % and in 1933 6,3 %. The results of the investigation "tend to show that flowers of more mature trees incline to give a higher percentage than those of younger trees which have only flowered for a season or two" (Pieris), a conclusion at which ANGENOT also arrived.

(2) *Yield of seedlings from selected and from unselected seeds.*

Until recently it was accepted that in fields planted with about 150 trees per hectare the yield of seedlings from unselected seeds increased in yield up to the 11th year to about 2 to 3 kg rubber per tree, that the yield remained stationary until the 15th or 16th year, and decreased from that age. In later years, however, our fields from unselected seedlings have given a more satisfactory production and therefore the general opinion is that the estimate mentioned is too conservative, at least for rubberfields where judicious methods have been followed in the upkeep of the fields and the tapping of the trees. SCHWEIZER (26) estimates for such fields in the 9th year an average production of about 3 kg rubber per tree and an increase to about 4 kg in the 14th year. He also points out that an increase in production up to the 20th year is no exception.

Yield figures given by VAN LEEUWEN (41) of rubberfields, planted with illegitimate seedlings of selected mother-trees, confirm the experience that even from illegitimate seedlings very satisfactory yields can be obtained. The yield of eight fields - the areas varying between 6 and 95 hectares - amounted at the age of 5 ½ years to 204 to 469 kg rubber per hectare, with an average of 371 kg. One of these fields is now 10 ½ years old and yields 1119 kg per hectare.

It is generally accepted that seedlings from carefully selected families - i. e. descendants of the same selected father-tree or-clone and the same selected mother-tree or-clone - give yields which compare favourably with those of the best clones. The graphs given by SCHWEIZER (26) of the yields obtained in East Java with such seedlings corroborate this view.

This can also be said from the yield-figures, of seedlings of clone AV 49, which were published by GONGGRIJP (3). The seedlings originated from seeds, obtained by pollination of clone AV 49 with pollen of clone AV 33, and partly from seeds obtained by self-pollination. The seedlings were planted in December 1926 in rows alternating with rows of budgrafts of clone AV 49. Tapping began in July 1930. The production was as follows :

TABLE VII. — *Yield per tapping.*

	Budgraft in grammes dry rubber	Seedlings	
		in grammes dry rubber	in % of the yield of the budgrafts
1930 (July-December) . . . . .	7 ½	4 5	61 %
1931 . . . . .	10	13	81
1932 . . . . .	27	22	81
1933 . . . . .	31	30	97
1934 . . . . .	30	33	92

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## THE INTERNATIONAL SITUATION AND PROBLEMS OF HORSE-BREEDING

### Part. 1. — Survey of the development of horse-breeding throughout the world.

Owing to lack of space in this number of the "Monthly Bulletin of Agricultural Science and Practice" the continuation of the 1st part of this article, published in No. 8, August, has had to be postponed to No. 10, October.

## METHODS OF ANALYSIS AND APPRECIATION OF WHEAT, FLOURS AND BREAD, PARTICULARLY IN RESPECT OF INVESTIGATIONS ON THE BAKING VALUE

### FOREWORD.

The numerous researches recently made in regard to the chemistry of cereals by well known scientists and investigators throughout the whole world have led to considerable changes in analytical chemistry and have shown the necessity for bringing up to date and unifying the methods of analysis and research. Ing. Arnaldo LURASCHI, President of the "Federazione Nazionale dei Panificatori", made this necessity clear at the 1st International Bread-making Congress (Rome, 1932) and his proposals were again vigorously defended at the 3rd International Technical and Chemical Congress of Agricultural Industries (Paris, 1934) and at the 16th International Agricultural Congress (Budapest, 1934).

It is certain that great improvements would be effected in the cereal trade if it were possible to come to an international agreement on the processes and methods of analysis and estimation. This, however, is a very delicate and complex question which is more difficult to solve than would appear at first sight. In fact, it is not only a question of standardising present methods, but it is above all essential that analysts and investigators should put their own personal feelings on one side and work together with the same methodical and scientific spirit.

The object of this present article is merely to present and to specify the most recent and accurate methods of research in the hope that an international meeting of scientists, technicians and persons interested in the question will be held in the near future and will lead to an agreement, and also to a practical application as indicated above.

To return to the subject; according to the object of the research the methods of analysis may be classified in 3 categories:

- (1) analysis of wheat;
- (2) analysis of flours;
- (3) experimental tests and analysis of bread.

It is certain that, with regard to the baking value, the most satisfactory determination is obtained by the practical proof of baking. In fact, the quality of the bread obtained allows an indirect, but exact, estimate to be made of the baking " strength " of the flour.

It must, however, be added that analytical research is always necessary as not only does it demonstrate the various chemical physical and physico-chemical properties of flours and the origin of certain phenomena, but also may provide elements whereby it will be possible rapidly to appreciate the qualities of the product examined.

In this first chapter research on wheat will be discussed and in the following chapters flours and bread.

## CHAPTER I. — ANALYSIS OF WHEATS.

Wheats have very variable characteristics and properties, dependent on numerous factors which are connected not only with the variety, but also with the systems of cultivation, the nature of the soil, climate, etc.

There are a great number of varieties of wheat, several tens of thousands, and the number increases continually owing to the work of selection and hybridisation.

Following the production and trade classification, wheats may be placed in three large categories:—

(1) *Hard wheats* (*Triticum durum* Desf.) with hard and heavy grain, compact and flinty on breaking.

To this category belong the hard wheats of strong bread-making quality of the types Manitoba, Bankuti, etc and also the wheats with yellow, golden or

straw coloured grain chiefly suitable for the manufacture of alimentary pastes. These latter are grown principally in hot countries.

(2) *Semi-soft wheats* (*Triticum turgidum* L.); average sized grains, yellowish in colour, on breaking starchy in the centre and flinty on the outside. In Italy these wheats are grown in the central regions.

(3) *Soft wheats* (*Triticum vulgare* Willd.): differentiated from the preceding wheats by the fact that the grains break readily and are white and starchy throughout.

As has already been seen, not all wheats are suitable for breadmaking; while many soft and semi-hard wheats have the characteristic qualities for the preparation of light and well risen bread, a certain number of hard wheats, particularly suitable for the manufacture of alimentary pastes, have properties which render them unsuitable for bread-making.

A flour, to be really suitable for bread-making, should have a combined set of characters which are known in the trade as the *strength of the flour*. This is the combination of chemical, biochemical, physical and physico-chemical properties which, on the one hand, give a normal and adequate fermentation and, on the other, impart to the dough a sufficient resistance to the pressure of gases disengaged as to confine them as much as possible. Hence the mass dilates and its volume expands uniformly and a bread is obtained which is large-volumed, light, appetising and perfect in all respects.

Wheats and flours are known as "strong" when they possess the properties indicated to an adequate degree, while the "weak" wheats and flours are characterised by an insufficiency of these properties.

Passing on the analysis of wheat, a few brief words will now be said on the principal determinations, at the same time particularly emphasising the latest improved methods.

The present methods of appreciating wheat may be classified under 4 headings:—

- (1) methods for determining physical and organoleptic characteristics.
- (2) methods of investigating the chemical properties;
- (3) methods based on bio-chemical determinations;
- (4) methods relating to the yield in flour.

It is, however, advisable to first say a few words on the taking of samples, grinding and preparation of the product.

*Taking of Samples.* — The essential condition for obtaining accurate results in the analysis of cereals is to take samples which represent an average of the product examined. For this purpose suitable apparatus are introduced into the mass of grain and several samples are taken from various depths. These are then mixed together into the shape of a square. This square is divided into 4 parts by the two diagonals. Two of these parts, the opposite angles of which touch, are then taken. If the sample is too large the above process is repeated until a sample is obtained suitable for research purposes.



*Grinding and preparation of the product.* — Before being subjected to chemical analysis, the wheat should be ground so that it constitutes a fine and homogeneous mass, uniform and constant in composition. For this purpose a small laboratory mill is required and the grains should be ground in such a manner that the chemical composition of the product is not altered. This work must, therefore, be carried out slowly, avoiding any heating of the flour which would affect the composition. The flour thus obtained is conserved in glass pots hermetically sealed with parafin until such time as they are utilised for further investigations.

A. — The study of the organoleptic and physical properties of wheat, which are of great importance from the scientific and practical point of view, relate to the following characters:—

- (1) purity of the wheat;
- (2) weight of 1 000 grains;
- (3) volume of 1 000 grains;
- (4) weight per hectolitre;
- (5) specific weight;
- (6) flintiness or hardness.

*Determination of purity.* — The purity of the wheat is a valuable factor for the classification of the wheat from the standpoint of commercial value. It would be desirable to be able to fix a maximum tolerance of the total quantity of foreign bodies (2 %, for example), as these foreign bodies are the cause of considerable loss during the processes of cleaning, especially if they are in the form of particles of iron, small stones, etc.

The purity of the wheat is determined in a very simple manner: after having taken a sample of 100 grammes of wheat all the foreign substances are separated from the mass by means of a magnifying glass and a pair of small pincers. The sample is then weighed again and brought up to 100 grammes.

*Weight of 1 000 grains.* — The weight, which is in direct relation to the size of the grains, is generally determined by means of a special grain-counting apparatus.

*Volume of 1 000 grains.* — In the majority of cases there is a direct relation between the volume of the grains and the yield in flour. The volume of 1 000 grains is determined by means of a small pycnometre fitted with a graduated tube. The apparatus is filled with xylol, 1 000 grains are introduced and the volume may be immediately read off from the graduated tube. The data obtained are very satisfactory from the practical point of view. If more accurate results are required, a volumenometre must be used which will be mentioned again later when the specific weight is discussed.

*Weight per hectolitre.* — Special importance is attached to this point in the purchase and sale of wheat although it does not precisely indicate the true milling yield it should be noted here that the true commercial value of a wheat is to be

estimated not only according to the yield in flour, but also according to the use to which it will be put. It has, in fact, been ascertained that the milling value of wheats is shown approximately by the weight per hectolitre, while there is no relation between this weight and the suitability of the wheat for bread-making. Several factors influence the value of the weight per hectolitre, among which are the following:—

- (1) the space occupied by the wheat which is dependent on the close packing between one grain and another;
- (2) the specific weight.

These factors, in their turn, are dependent on the chemical composition of the grain, and especially on its content in water and bran; the volume; the shape; the presence of foreign bodies and imperfect and unripe grains; the smoothness of the surface of the grain on which depends the slipping down or heaping up of the mass. It is understood also that the variation in the weight per hectolitre is also influenced by the soil and climatic conditions of the place of origin of the crop, by the degree of ripeness, or of dryness, by the purity, etc. To these factors, which are dependent on the quality of the product, must be added other factors related to the methods employed for warehousing the wheat. The weight of the hectolitre varies considerably according to the height and capacity of the warehouse and the quantity stored, and it is thus that, according to different methods of storing, (sacks transported and emptied by hand, "transporter" elevators suction elevators etc.) the heaping of the grain will vary and with it the weight per hectolitre.

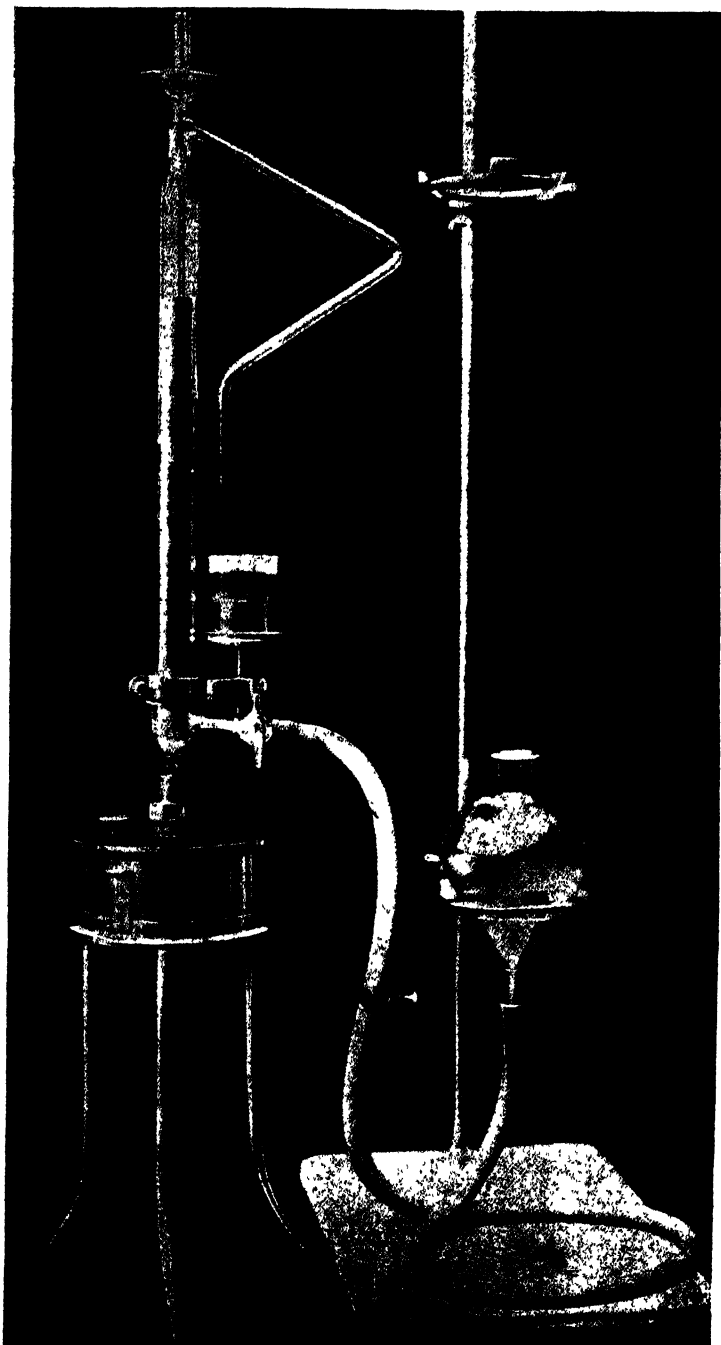
In the trade it is more important to obtain values which are comparable and correspond to each other than very accurate results, also it is essential strictly to follow the prescribed rules and to employ the methods and apparatus officially adopted. The SCHOPPER apparatus with a capacity of 1 litre is the most utilised special tables give the weight of the hectolitre calculated from the figures shown on the scale. It is advisable, for this determination, to place the wheat in the apparatus by means of a filler of funnel shape with a wide base so as to obtain the same packing each time (1).

The weight of wheat to the hectolitre varies from 68 to 84 kg. and is as much as from 87 to 88 kg. for hard wheat.

*Specific weight.* — The value of this weight varies from 1.28 to 1.50 and is in strict relation to the quantity of the cereal examined.

In the opinion of certain authors, the specific weight of a wheat should always be determined in order to appreciate the commercial value as this would be much more accurate than the weight per hectolitre the determination of which is influenced by various factors.

(1) E. SCHMIDT has invented a new apparatus whereby by means of a system of small gratings the packing of the wheat in the receptacle is simplified and is more uniform and constant. The results are higher, but more in agreement and more accurate (*Das Mühlenlaboratorium*, 1932. 4).



Volumenometre with direct reading.

The specific weight varies according to the differences in the nature of the product examined and, with regard to cereals, two factors must be taken into consideration:—

- (1) the air content;
- (2) the chemical composition of the cereal.

Air is present either in the external integuments or in the albumen; the specific weight diminishes as the air content increases. Humidity greatly influences the specific weight, also the protein substances, there being a diminution in the specific weight in proportion to an increase in these substances.

For determining the specific weight of cereals, the apparatus used at present are ordinary pycnometers or special pycnometers (BRÜCKNER-KÜHN apparatus) and the method of heavy liquids of Prof. NEUMANN is followed (*Zeitschrift für das gesamte Mühlenwesen*, 1927, 4.) These processes are not, however, free from error as the xylol, as well as the other liquids, does not adhere perfectly to the surface of the grain and is also more or less absorbed by the grain.

The most accurate method, and the one that should be adopted for cereals, is certainly that which is based on the use of volumenometers ordinarily employed in physics for determining the specific weight of substances with a high absorbent capacity.

In our laboratory we have used a volumenometer invented by our collaborator, Dr. DE RÈGE, which has the advantage of giving a direct reading. The characteristic of this apparatus is that the glass tube containing mercury is graduated so as to correspond to a given barometric depression. The calculation is very rapid. The apparatus is calibrated, the recipient is filled with a certain quantity of grain and the result is read and verified by means of the manometre. The total specific weight is obtained by dividing the number of cubic centimetres occupied by the cereal by the weight of the cereal.

*Specific weight of various wheats.*

WHEATS	Pycnometre		BRÜCKNER-KÜHN apparatus (Xylol)	Method of Prof. NEUMANN	Volumenometer	Weight per hectolitre (in hg.)
	Water	Xylol				
Amber . . . . .	1,250	1,378	1,377	1,384	1,410	82.15
Senatore Cappelli . . . .	1,224	1,335	1,334	1,360	1,385	78.60
Manitoba . . . . .	1,256	1,355	1,356	1,382	1,415	83.70
Mentana . . . . .	1,248	1,402	1,400	1,385	1,419	80.35
Balilla . . . . .	1,249	1,355	1,352	1,374	1,410	80.35
Virgilio . . . . .	1,234	1,355	1,355	1,375	1,416	78.60
Catria . . . . .	1,258	1,332	1,330	1,371	1,399	78.80
Zara . . . . .	1,230	1,355	1,350	1,375	1,400	81.23
Fausto Sestini . . . . .	1,257	1,333	1,330	1,375	1,420	76.80
Damiano Chiesa . . . . .	1,268	1,334	1,333	1,372	1,400	81.25

The data given by the volumenometre are higher, but more accurate. It must also be remarked that there is no strict relation between the value of the specific weight and the weight per hectolitre.

*Determination of flintiness.* — According to a great number of authors, the degree of flintiness or hardness is in direct relation to the quantity of nitrogenous substances and gluten contained in the wheat. The wheats richest in flinty grains are the most sought after for making alimentary pastes, while those richest in starchy grains are most suitable for manufacturing starch. It must be remarked that there are hard wheats which are not suitable for making pastes, while being eminently suitable for bread-making.

For the purpose of determining the hardness of wheats, special apparatus for taking sections are used and the percentage of hard, semi-hard and starchy grains is calculated.

*B. — Chemical analysis of wheat* generally includes the following determinations:—

- (a) determination of humidity,
- (b) determination of ash,
- (c) determination of proteic substances,
- (d) determination of fats,
- (e) determination of crude cellulose.

*Determination of humidity.* — Humidity is an element of great importance in estimating the value of wheat from the commercial standpoint and from that of its keeping qualities. The humidity content of wheat is chiefly dependent on the climatic conditions in which it has been grown. Humidity appears under various forms, especially:

- absorption humidity.
- vegetation humidity,
- humidity of chemical constitution.

The first is derived from the soil, the second is due to rains, mists, dew, etc.

Vegetation humidity is present in all the phenomena of development, growth and maturation of the plant. The cereal loses a part in drying and retains a quantity varying from 10 to 16 %.

As to the third type of humidity, constituted by the water of crystallisation and that derived from the disintegration of molecules, no investigation has been made.

Several methods are followed for determining the humidity. In our laboratory the process is as follows:—

5 gm. of wheat flour are taken and placed in a calibrated weighing-bottle, it is then dried in a stove at 105°, up to constant weight (6 hours) (1).

(1) The determination of humidity in a stove at 105° does not give very accurate results and as a rule there are errors of about 0.3 %. To eliminate completely the last traces of humidity a Liebig U tube must be used brought up to 105° and through which a current of dry air or inert gas is

*Determination of ash.* — The ash content in wheats varies from 1.5 to 2.6 % and the wheats poorest in ash are generally the least rich in cellulose.

For the determination of ash the process is as follows: 5 g of wheat flour is carefully weighed in a platinum or porcelain evaporating dish and then placed in a muffle furnace which is progressively heated up to a maximum temperature of 650°. For rapid results it is advisable to moisten the mass after carbonisation with small quantities of oxidising substances such as neutral oxygenated water, a watery solution of ammonium carbonate or nitrate, etc.

*Determination of nitrogenous substances.* — The content of wheat in nitrogenous substances is in direct relation to the gluten in the flour and varies greatly from one wheat to another. With certain hard wheats it is as much as 19 %.

The quantity of nitrogen is ascertained by the Kjeldahl-Ulsch method, using 3 gm. of flour, 25 ccm<sup>3</sup> of phospho-sulphuric acid (125 g phosphoric anhydride dissolved in 1 000 ccm<sup>3</sup> of sulphuric acid at 66° B), a small quantity of copper oxide (0.05 g) and 4 to 5 drops of a 10 % solution of platinum chloride. The quantity of protein substances is obtained by multiplying the nitrogen content ascertained by the factor 6.25. The American official method prescribes the factor 5.7, while the figure 6.25 is generally adopted in European laboratories.

*Determination of fats.* — 10 g of flour are placed in an extraction filter and dried for 2 hours in a hot water oven. Extraction is then carried out for 10 hours in a DE SOXHLET apparatus with anhydrous ether. The filter is removed and the balloon flask containing the ether extract is heated to eliminate the ether. The final traces of ether are removed by heating the open balloon flask in a bain-marie. The residue is then dried for one hour in a hot water oven and then weighed. The fat content varies greatly in different wheats, and may be from 1.5 to 1.9 %.

*Determination of crude cellulose.* — For this operation the WRENDE method is the most advisable. The procedure is as follows —

In a porcelain evaporating dish is placed 3 g of flour with 200 cm<sup>3</sup> of sulphuric acid (1.25 %) and boiled for 1 ½ hours, adding water as evaporation takes place. It is then filtered and the contents of the filter is collected in the evaporating dish by a jet of water; 200 cm<sup>3</sup> of water is added and the whole is boiled for half an hour. It is then filtered again, the water treatment is repeated it is boiled again and the residue is placed in the filter.

The residue in the filter is boiled again in the same evaporating dish for half an hour with 200 cm<sup>3</sup> of a solution of caustic potash (1.25 %) and filtered. The water treatment repeated is twice as before, boiling each time for half an hour.

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passed. The rapid methods recommended lately such as those based on the use of high temperatures, or on the determination of water by distillation in the presence of special liquids, or on the determination of humidity by electric constants, although of great interest on account of their rapidity, do not give an absolutely accurate determination.

All residue not dissolved is passed through a calibrated filter, previously dried at 105°; it is first washed in boiling water then cold water, and finally in a mixture of alcohol and ether; it is then dried at 105° and weighed. The filter and its contents is placed in a crucible, the whole is incinerated and weighed. The quantity of crude cellulose, referred to 100 parts of substance, is obtained by deducting from the weight first obtained the weight of the ash. The proportion of crude cellulose varies from 1.5 to 3 % and even 4 % for certain wheats.

\* \* \*

C. -- *Bio-chemical tests*, which are made on the whole wheat, include all the methods whereby the baking value of the variety may be determined with more or less accuracy.

The need for a method suitable for the requirements of farmers and geneticists (who, for the creation of new varieties, must carry out tests on small quantities of wheat) has resulted in new studies being made by numerous investigators.

The method most widely used by technicians is certainly that of Dr. PEL-SEHNKE of Halle University. (*Archiv für Pflanzenbau*, 1930, 5). This scientist has introduced a bio-chemical process called "Schrogarmethods" for determining the quality of wheat from the point of view of bread-making. The process is as follows:—

10 g of whole flour is kneaded with 0.5 gm. of yeast and 6 cm. of water so as to obtain a dough of average consistency. Contrary to what usually occurs with ordinary flour, whole flour, according to the writer, will always have the same degree of water absorption, so that the tests will give constant results.

The dough is divided into 2 equal parts and well kneaded by hand on a glass sheet so as to form 2 balls of dough taking care to make them perfectly homogeneous. These two balls are placed in two glasses 6 cm. in diameter and 7 cm. in height, and filled with 75 cm. of water. These are placed in a thermostat at 32°. The time when the balls are placed in the glasses is noted and also the moment when, after the splitting of the dough into fragments these fall to the bottom of the glass. The time, in minutes, which elapses between the beginning of fermentation and the break up of the dough is taken as an index figure of the quality of the gluten. Weak flours break up rapidly, strong flours slowly.

These index figures vary greatly according to the variety of wheat. The finest wheats have indices exceeding 80; the weakest have indices below 30.

This method, which according to numerous experimenters gives results very fairly in agreement with baking tests, is particularly valuable in the field of genetics with regard to the choice and estimation of new varieties.

Another rather similar method is the Göttingen (*Das Mühlenlaboratorium*, 1934, 7 and 10). The increase in volume of the ball of dough is determined during fermentation and consequently the capacity of the dough to retain gases. This property is more pronounced in the flours of superior quality.

D. — *Investigations on the milling yield.* — An approximate appreciation of wheat from the point of view of milling is arrived at in the trade, on the basis of weight per hectolitre.

It is generally considered that wheats having a weight per hectolitre less than 80 give a yield in flour of less by 1 to their weight per hectolitre, while the wheats with a weight per hectolitre higher than 80 give a yield in flour of less by 2. This naturally only serves as an indication and the desirable precision cannot be obtained in this way as other factors, such as humidity, size and shape of the grains, percentage of foreign bodies, etc., also have an influence.

Thanks to modern methods of milling, the miller obtains several qualities of flour from the wheat which are sold under different names according to the choice of the producer and the purposes for which they are intended.

With a view to judging the milling quality of a wheat, millers take as a basis the various qualities of flour obtained in identical conditions. It must be remarked that the yield in flour also depends, in addition to the quality of the wheat, on the system of milling and the improved character of the milling apparatus.

Investigators in the laboratories extract a single quality of flour known as whole or complete flour, obtained from wheat with the bran removed, extraction being effected in apparatus of reduced size and according to different methods.

It is certain that the results thus obtained cannot agree. In fact, scientific and practical methods must be followed which give results corresponding to and in agreement with those obtained at the mill.

For this reason we have adopted a small experimental roller mill called the "Vottero experiment mill" and with which we obtain very satisfactory result.

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## **MISCELLANEOUS INFORMATION**

PRESENT CONDITION OF BREEDING DOMESTIC ANIMALS IN U. S. S. R. AS REPORTED TO THE VII SOVIET CONGRESS MOSCOW, 1934. — In his general report the President of the Council of Peoples Commissioners, W. M. MOLOTOV, touched on the problem of stock-breeding which in U. S. S. R. has become very serious during the last few years.

As M. MOLOTOV said, stock-breeding greatly declined during the period of agricultural re-organisation up to the year 1934, and it is precisely this decline that has impeded an increase in total agricultural production in U. S. S. R. The principal task for agriculture at present is therefore, the encouragement of animal husbandry. The most recent figures, however, show that in 1934 a change has taken place and, in comparing the figures of 1 January, 1935 with those of 1 January, 1934, it will be observed that the number of horses in the collective farms has increased by 8.5 %, cattle by 30 %, sheep by 18 % and pigs by 27 %. The destruction of herds



is therefore a thing of the past. The future should show a development according to the 2nd five-year plan which prescribes an increase in stock-breeding in the "kolkhoses" (collective farms), and also in the total number of animals and poultry belonging to individual peasants in the "kolkhoses".

In addition to the report of M. MOLOTOV, on measures for encouraging stock-breeding was presented to the Soviet Congress by the Peoples Commissioner for Agriculture, M. A. Tchernov. According to this report, the increase in stock in 1935 should be, according to the State programme, 11.4 million calves, 16.6 million lambs, 14.4 million young pigs and 2.1 million chickens. In 1934, on 100 "kolkhose", it was reckoned that there were 40.4 cattle, 23.9 pigs, 6.3 sheep and 2 horses. In 1935 the decision that each "kolkhose" should have a farm for breeding one or other species of animal, should be put into practice. Although the number of animals belonging to the "kolkhoses" has increased considerably, the number of animals belonging to individual peasants is still greater. The State encourages and assists peasants in the "kolkhoses" to acquire one cow and several pigs. Thus in 1933 and 1934, 1.5 million calves and 2 million young pigs were distributed. The State also accords grants for assisting peasants to breed young animals. The report of M. TCHERNOV contains a large amount of statistical information on past development and development fore-seen in the future. A great increase in stock is shown by the data contained in this report, the serious decline in this branch of agriculture having been recognised by the authorities as being the greatest obstacle to progress in the socialist economy of the U. S. S. R. (See *Sovjetwirtschaft und Aussenhandel*, Berlin, Januar-Februar, 1935).

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(2) List of abbreviations: bihebdom. (biweekly); binens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebdom. (weekly); int. (home price); irr. (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebdom. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [ ] are given translations and explanatory notes not appearing in the title of the review.

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APPLY TO:

**INTERNATIONAL INSTITUTE OF AGRICULTURE**

**VILLA UMBERTO I**

**ROME, (110) Italy**

# MONTHLY BULLETIN

OF

## AGRICULTURAL SCIENCE AND PRACTICE

### ORIGINAL ARTICLES

#### THE INTERNATIONAL SITUATION AND PROBLEMS OF HORSE-BREEDING

**Part 1: Survey of the development of horse-breeding throughout the world**  
(*conclusion*) (\*).

#### III. — CHANGES IN THE FORMS AND AIMS OF HORSE-BREEDING.

The object of any form of breeding is always determined by the qualities required in the animals bred and success or failure is dependent, in the majority of cases, on the extent to which production can be made to correspond with requirements and the rapidity with which it can be adapted to changes in demand. The causes of these changes are almost always in relation to the changes in methods of utilising the animals and the development in the purposes of breeding in one or other direction. Breeding must be adapted to these changes and apart from any change of a numerical order: (1) by modifying the composition of stocks in view of the demand for breeds possessing the required qualifications; (2) by modifying the breeds by selection with a view to obtaining the types corresponding most closely to the ideal required and possessing the greatest number of qualities in demand.

#### I. — CHANGES IN THE METHODS OF UTILISING HORSES,

The history of horse-breeding clearly shows how it has had to be adapted to changed conditions. The horse, as a military animal, has had to correspond to the great differences in requirements from the time of the knights to later periods, when methods of warfare were changed by the introduction of fire arms, by the influence of Turkish light cavalry, etc., when heavy equipment was no longer employed and great mobility was required of cavalry. In the following period national armies were established necessitating the acquisition of great numbers of animals of uniform type and the establishment of national studs. It was

(\*) The beginning of Part 1 appeared in this *Bulletin*, August, 1935

not only development in the army that influenced the direction taken by horse-breeding but also changes in transport methods and agricultural technical progress in general. The increase in travel by horse-drawn vehicles, the development in road construction and the possibility of obtaining greater speed by the introduction of light vehicles naturally had a considerable influence on the demand for horses, both as regards quantity and quality. In the same way, at a later date, the invention of railways, motors and the increase and improvement in urban traffic had an influence on horses and brought about changes in the types required by the transport industries. The introduction of motor engines, the invention of new sources of energy produced a change in the demands for horses, which had hitherto provided the main source of energy necessary for the requirements of industry.

The present period, with all its changes, marks a turning point in horse-breeding. There is far less demand for luxury horses, carriage horses and pleasure horses, than before. There is a limited market, it is true, for horses for sport, such as race-horses, trotters, hunters, polo ponies, steeple-chasers, and also horses for other forms of fashionable sport such as "skijöring".

As the greater part of the stocks of horses is at present in the hands of farmers, who are the principal buyers, it follows that the requirements of agriculture are those which must be first considered by horse-breeders. Naturally these requirements are also influenced by the region, and the type and level of agricultural production. Intensive farming, also regions with fertile but heavy soil, demand a greater output of power, that is, stronger and heavier horses whose needs, as regards feeding, can be most easily satisfied.

According to conditions of environment, chiefly climatic, so farming requires heavy draught horses or a heavier type of light horse. A continuous output of great strength and a docile temperament are the minimum requirements. In regions of intensive agricultural production, roads are generally good and modern, horses are not expected to take long journeys and speed is of no great importance. On the other hand, they should be able to move very heavy weights at a slow rate. Following the economic development of such regions, the growing of hoed crops has increased, ploughing is deeper and heavy loads such as wag-gons of beetroot, must be taken to the station or the farm, all of which entails an output of great strength (1) \*.

In districts with extensive farming, horses should have more general qualities and should be adapted to rapid transport, as here distances are great. The strength required is less, ploughing is not so heavy and feeding conditions are less good. The same applies to districts with light soil. Farm horses are put out to grass, during slack periods, on pasture usually left without proper attention and where forage production is small. It is evident that in these regions a lighter kind of horse is needed with lower food requirements than the type mentioned above.

In addition to these factors related to the nature of production, the qualities of the animals employed are also sometimes profoundly modified by measures of agra-

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\* Figures in brackets refer to the *Bibliography*, pp 487-489.



rian policy. Thus, in some regions, where a radical agrarian reform has taken place, the type of horse bred does not correspond to the general rules discussed above. Horse have become lighter and their value has decreased, as at the present time farms are too small to be able to utilise the heavier types of horses, which were bred in these districts before the reform. The plots are sometimes situated very far from the village in which the owners live and these, to save time, wish to cover the distance as quickly as possible.

A modifying influence has also been exercised by the introduction of tractors on the farms, but this influence is very difficult to estimate. This is particularly the case in Europe, where the introduction of tractors in farming has not changed methods of farming so profoundly as in over-seas countries. In this respect it is important to note that, according to an official publication of the Department of Commerce of the United States (2), following the diffusion of the use of tractors, heavy horses were no longer required on farms and were replaced by horses of a lighter type. On account of this increase in the use of tractors, it may be said that the heavier work is carried out with tractors and horses are only required for the lighter work.

Between the two extremes: on the one hand, intensive farming, in regions with heavy soil necessitating great strength and heavy types of horses, and on the other, extensive farming, in regions with light soil requiring light and sometimes quite small horses, there are naturally many intermediate conditions, according to the type of cultivation, requiring intermediate types of horses.

The qualities required in army horses also depend on local conditions (roads, climate, etc.) in the various countries. As has already been said, when the first national studs were established, army requirements were the determining factor in horse-breeding. This situation lasted, in the majority of countries, but to a lesser degree, up to the outbreak of the world war. A complete change in purpose took place after the war. Army requirements became far less important than before the war, when horses bred for the remount department but not sold to the army, could find a market as saddle or carriage horses. On account of the changes in the modes of utilising horses, it is now almost impossible to find a market for remounts refused by the army, with the result that many breeders have given up breeding this type of horse and have replaced it by draught horses which are easier, less risky and more remunerative to breed. These changes are very important and even constitute a serious danger for military administrations, which are unable to find the horses they require.

The least difficulties still appear to exist in acquiring horses for the artillery and the army train, this type being generally found in countries with intensive or semi-intensive cultivation. The qualities required in these horses are too well known to need description here. It follows that requirements are dependent on the country, climate and road conditions, but the most important quality, from the point of view of horse-breeding, is above all uniformity, that is, it is necessary to produce a large number of horses alike in build and other characters, which may be harnessed together in large teams (3).

The determination and production of the saddle horse corresponding to current ideas on riding is a much more difficult matter. The type that is being sought

today is very different from the ideal type looked for by breeders not so very long ago. G. RAU (4), one of the best judges of a horse, defines the ideal type as a horse which is in equilibrium, that is, a horse in which the whole body is in harmony and all the traits are in proportion. The horse should be on large lines, and "cover a large surface". It should be powerfully built, long in the neck, with sloping shoulders, long withers, a sufficiently long back and a long crupper. This horse "covers a large surface", when the shoulders are long and sloping, the arm long, when it has a long system of leverage of the hindquarters, with the bones set at suitable angles and a satisfactory mechanical system.

The type of saddle horse now abandoned corresponded to cavalry requirements of the past, manoeuvring in large units (regiments, brigades and divisions) and where a difference of a few centimetres caused difficulties in evolutions. Horses were required, which were almost machines of precision, uniform in build, capable of carrying very heavy weights and in which large free movements were undesirable, as the soldier who rode the horse was at times obliged to manage it with the left hand only and was unable to control it, if the movements were too large and free. A horse was required: "covering a small surface", with a short body, a short, strong back and the head carried high on the neck, as the rider held the reins short so as to be able to control his mount with greater ease. Absolutely correct movements were needed, so that the animals could move in a perfectly straight line and no great importance was attached to large free movements such as are produced by longer shoulders. Thus a horse was established which had style with not much shoulder, flat footed and even paced, with the neck set high and often exaggeratedly curved.

The type which is in demand today has been established by the change in cavalry movements in large closed units to open formation adapted to conditions of the terrain. This has necessitated a modification from the short type of swan-necked horse to a well balanced horse on large lines. The French General BRECARD (5) thus summarises the qualities required in an army horse:—

Short term service requires a docile horse, easy to manage.

The methods of employing cavalry are no longer the same as in 1914.

Long cross-country galloping will be exceptional.

The tactical use of the different mounted corps is now standardized.

The saddle horse should be able to carry very heavy weights (140 kg.), at an average speed, chiefly at the walk and the trot, over long distances across country, in spite of privations of all kinds, and should be able to repeat these efforts.

#### Qualities required in an army saddle horse.

These may be classified in the following order of importance:—

- (1) Good carrying capacity, strong, clean limbs, good feet, full deep flanks, a hardy temperament, average height (1.55 to 1.62 m.) } for endurance
- (2) Strength obtained by a well developed skeleton and low stance, } to be able to draw and carry as large, low joints and a powerful muscular system } required.

- (3) Equilibrium derived from the distribution of the weight and lines, from the length (distance from the point of the shoulder to the point of the hind-quarters at least equal to the height) such as can be obtained by a minimum training and is shown by firm, brisk and long paces, especially at the walk.
- (4) Blood. Its importance cannot be ignored; it gives a good constitution with resistance to fatigue and work, but that is not enough. It should give fire to the army horse without resulting in too light a type, nervousness and excitability.

The purer the breeding, the greater care should be taken to retain a strong enough type with a powerful skeleton.

The French *Société hippique* for encouraging the breeding of army horses has taken account of this new tendency in army horse breeding and has drawn up new rules (6) for judging saddle horses. These are given below as they show more clearly the type sought after than would a detailed description.

Judges should take note of the following characteristics:—

*As to height.*

At 3 years:

any half-bred over . . . . .	1.62 m
any Anglo-Arab over . . . . .	1.59 "

At 4 years:

any half-bred over . . . . .	1.62 "
any Anglo-Arab over . . . . .	1.61 "

*As to weight.*

At 3 years

any heavy weight half-bred under . . . . .	500 kg
any medium weight half-bred under . . . . .	450 "
any Anglo-Arab under . . . . .	375 "

At 4 years:

any heavy weight half-bred under . . . . .	500 "
any medium weight half-bred under . . . . .	450 "
any Anglo-Arab under . . . . .	400 "

*As to sub-sternal space*

any heavy weight half-bred with sub-sternal space exceeding half the height by more than . . . . .	5 cm
any medium weight half-bred with sub-sternal space exceeding half the height by more than . . . . .	6 "
any Anglo-Arab with sub-sternal space exceeding half the height by more than . . . . .	7 "

*Circumference of the cannon.*

any heavy weight half-bred with the circumference of the cannon less than 20.5 cm.	
any medium weight half-bred or Anglo-Arab of over 1.57 m. with the circumference of the cannon less than 19 cm.	
any Anglo-Arab of 1.57 m. and below with the circumference of the cannon less than 18 cm.	

## Compensations:

*Height.*

Excess of height should be compensated by a sub-sternal space corresponding strictly to the determined limits.

*Weight.*

Lack of weight should be compensated by an excess over the fixed minima both in respect of the circumference of the cannon and of the sub-sternal space.

*Circumference of the cannon.*

The minimum circumference should be maintained and cannot be compensated in any other way.

*Sub-sternal space.*

An excess in the sub-sternal space should be compensated by the circumference of the cannon at the rate of 1 cm to 4 cm of the sub-sternal space.

These measurements are only *indications*, which it is suggested that judges should follow.

They are also intended for directing breeders towards the type of saddle horse that should be encouraged.

The economic situation of saddle horse breeding has given rise to more difficulties than has the technique of the new direction taken by production. The reasons why this branch of production is in a backward condition, particularly in certain countries, have already been enumerated, but these difficulties are also made clearly evident in the memorandum that General WATTEL, Inspector of the French remount department, compiled for the War Ministry at the end of 1934. This memorandum also contains suggestions for overcoming these difficulties. It is stated that, though the French saddle horse has reached a high degree of development, the breeding of this type has decreased to such an extent that it is feared that it may disappear altogether. General WATTEL is of the opinion that up to the present too much pedigree breeding has been utilised in the production of the French saddle horse.

Breeding has been directed almost exclusively towards producing the type of "galloper" which is not saleable outside the army. This type must be retained in the future, but production should be directed towards mass production of a double purpose type, that is, attempts should be made to produce a horse that can be used both in agriculture and for rapid traction.

The type of saddle horse that breeders should try to produce includes a whole series, ranging from the kind of horse used by lancer regiments to an improved type of *postier* that can also be ridden. This type also meets the new requirements of the army. Motorisation has rendered fast cavalry horses superfluous and a stronger animal is required with greater endurance even if it is slower paced.

The memorandum of General WATTEL shows clearly the intention to assure the supply of saddle horses by producing a type that is suitable both for the army and for agricultural purposes. A similar policy has also been followed in breed-

ing light horses in almost every country. According to the German horse review *Sankt Georg* (7), the maintenance and success of light horse-breeding in Germany is due to a theory which was rapidly adopted after the war, according to which the mare should be strong enough to carry out all the work required of her on a farm. A type of horse corresponding to present demands is produced with this mare and a thoroughbred stallion of the saddle horse type or a stallion of the heavy half-bred type. The programme of the Director of national studs, SEIFFERT (8), differs from the above theory and aims at producing horses for current use by means of a stock of mares of a uniform type. "We require today for breeding thoroughbreds" says M. SEIFFERT, "two types of horses: (1) a large type of draught horse, low in the leg with fast paces, easy to feed, of German origin and suitable for use on the farm and in commercial transport; (2) a saddle horse built on large lines with good pedigree for use by the army and for sporting purposes".

M. CHOIN DE DOUBLE (9) draws attention to the divergence between these two opinions, but it must be admitted that in large countries, containing regions with varying conditions, it is not possible to constitute stocks of horses of a uniform type and, even if it were possible, it would not be desirable.

A note by General BRECARD (5) expresses the following view: "Must it be said that a standard type of horse can be arrived at which is the same for every part of France? No, each region has its own possibilities due to terrain, climate, methods of breeding, but, without prejudicing any particular region, attempts should be made to direct production towards a type of value both for civil and military purposes".

The German plan also provides for a regional limitation for breeding with the object of division of the work of horse-breeding, based on the outstanding differences existing in the various regions. WATTEL expresses himself on the subject as follows: "It should be possible to arrive at the regulation of breeding and sale, not only from the quantitative but also from the qualitative points of view. The production of heavy horses for agricultural purposes should be confined to regions such as the Rhineland, Saxony and Westphalia for heavy draught horses and Oldenburg and East Friesland for half-bred horses. On the other hand the breeding of fine saddle horses and blood stock should be reserved for regions such as Hanover, East Prussia and Holstein. With this specialisation competition between these regions should be eliminated and each one should be able to obtain a stable market".

In addition to race horses and horses specialised for certain sports, the breeding of which is relatively limited from the numerical standpoint, but none the less important, the scale of national horse breeding ranges from saddle horses and light cavalry horses to heavy farm horses and includes all the intermediary types. It is true that there are also, as will be seen later on, when describing the breeding of light horses, breeders who produce types even lighter than those required for cavalry, but, in general, these efforts, are not desirable from the point of view of national horse-breeding and under certain forms, result in a "proletarianisation of the stocks" (10). At the other end of the scale, the exaggerated types which exceed the limits are more rare. It is true that at times types are

produced which are heavier than those generally required as heavy draught horses for agricultural purposes, but these are isolated cases, due to misunderstanding of the principles of horse-breeding or, more frequently, to a desire to follow a fashion.

That which distinguishes the present "breeding scale" from previous scales is the fact that it is relatively short. Only the types most in demand have been mentioned here. Though it is true that sometimes types other than those described in this article are required, generally speaking a smaller number of standard types are needed than in the past and these types do not differ greatly from each other, but merge into one another almost without discontinuity and include the types that have not been mentioned, such as carriage-horses, etc. There is a tendency today to breed types which may be utilised in many ways rather than over-specialised types. It may also be observed that the object of horse-breeders today is rather to satisfy economic requirements than to meet the needs of the army, although great importance still attaches to the latter. In reality military administration at present tries to adjust the requirements of the army to those of agriculture which was not the case before the war.

## 2. — CHANGES IN THE COMPOSITION OF STOCKS.

On account of the changes which have affected the utilisation of horses and their position in rural economy, other important changes may be observed in the composition of stocks from the point of view of breeds. Before discussing these changes in detail, attention should be drawn to two difficulties which make it far from easy to follow the development in this respect.

The first consists in the fact that very few countries make a census of their horses from the standpoint of breed. In analysing the situation, the points of departure to be taken are the general descriptions of horse-breeding in countries where no statistical information is available on the subject. Unfortunately the greater part of these descriptions is not sufficiently well established, especially when the stocks are composed of several breeds. Supplementary information may be found in the statistics on the composition of stocks of stallions; they are generally more precise in respect of the origin of the animals, as for stallions in general full information exists on this point, while in making a census of the total stocks, the agents carrying out the work make many mistakes and encounter difficulties, sometimes very great, in classifying the results of cross-breeding. This also applies to the statistics for mares served. On the other hand, the composition of the total stocks of horses cannot be estimated from the composition of the stocks of stallions. The effect of a change in the stocks of stallions on the total stocks only makes itself felt relatively slowly and even the use of various stallions is not the same. It should not be forgotten that the State generally puts at the disposal of breeders a fairly large number of pure-bred stallions in comparison with draught stallions, as the interests of national defence are involved and as good pedigree stallions are usually more difficult to acquire and are often very valuable.

It is not enough to take into consideration the stocks of stallions belonging to the States, but approved and authorised stallions belonging to private persons must also be reckoned and even this may not suffice as, in several countries, stallions are largely used which are neither approved nor authorised and do not appear among the statistics of the stallion stocks.

Another difficulty lies in the fact that horses are not classified in the same way in all countries, categories are not established according to the same ideas and their limits are not in agreement as between one country and another. In Germany, for example, there are two large groups of horses: the "Kaltblut" (heavy) and the "Warmblut" (light). Apart from the inaccuracies of this classification, it is in no way in agreement with the French or English classification. In France, the breeds are classified into thoroughbred, half-bred and draught horses; the English classification makes a distinction between light and heavy horses. As has already been said the limits of these categories are completely different. Thus, for example, as M. SPINDLER (11) remarks, the German method of classification cannot be used in France, as several French draught breeds have acquired, through interbreeding, characteristics which do not permit them to be classified in the "kaltblut" category, to which they would otherwise belong. The German classification cannot include *postiers* and many difficulties would arise in including different breeds and types, which are classified in France in the category of draught horses. In the same way, similar difficulties would be encountered in attempting to apply the French classification in Germany or England. These difficulties become more evident, if the various significations attributed to the term "half-bred" in different countries is taken into account. While, in some countries, this term is applied to each breed and type originating from cross-breeding with thoroughbred horses, in others it applies to any type of cross-breeding. Unfortunately there is no perfect form of classification in existence. For describing the categories in the majority of these methods of classification, the words of RAU (12) relating to "cold-blood" and "hot-blood" may be applied: "If these designations are closely examined, it will be seen that they do not express anything particular, yet everyone knows what they mean".

These reservations must be made in order to justify the fact that from now onwards it is not possible to give a more detailed description of the composition of the stocks of horses from the point of view of breeds. Although the following information refers only to countries with organised national horse-breeding in the strict sense of the term, they will nevertheless suffice to give an idea of the tendencies to develop in this direction.

One of the characteristics of horse-breeding in Europe in the second half of the 19th century is the extension of breeds of draught horses at the expense of light horses and the rapidity with which this has taken place.

The diffusion of breeds of draught horses is in strict relation with the development of industry and agriculture. The draught horse has proved to be a type most suitable for agriculture which is becoming more and more intensive; it is most useful for the work of ploughing on heavy soil; owing to its docile temperament it does not require much attention nor specialised attendants and can be utilised both for commercial transport and for the various industries. The extension

of breeding draught horses has given rise to violent disputes; agriculture, commerce and industry had need of a certain type, as the characteristics of a half-bred horse, bred according to the requirements of the army, were no longer sufficient; on the other hand the State, which was obliged to take the army requirements into account, prevented the extension of draught breeds, so that the breeding of light horses should not be affected. This conservative attitude taken up by departments also had good effects, as in this way a check was put on the breeding of draught horses becoming fashionable and on its adoption in regions where the conditions of environment were unsuitable.

The war also produced profound changes in horse-breeding. On the one hand, during the world war, draught horses proved to be useful from the military point of view under certain conditions and, on the other hand, after the war the motorisation of armies and the reduction in armaments in the conquered states raised barriers which prevented the expansion of breeds of draught horses. The limited purchases made by the army, the difficulties encountered in finding a market for thoroughbreds, the competition from thoroughbreds raised in States where they can still be kept in troops, chiefly in the east of Europe, led breeders gradually to abandon the breeding of thoroughbreds and to confine their efforts to breeding draught horses, a matter which is easier and less hazardous. The breeding of draught horses was also favoured by the fact that, in several countries, cereal production was increased and a great part of the pasture land which was necessary for rearing a good type of thoroughbreds was turned into arable land. At the same time agriculture, which is increasingly dependent on the markets in the capitals, has the advantage that breeds of draught horses are raised which mature earlier, and capital is not therefore immobilised for more than two years, while in breeding pedigree stock, which generally matures more slowly, 4 or 5 years have to pass before capital is released.

The breeding of draught horses has spread from the west and north-west of Europe towards the centre, east, south and south-east in a relatively short space of time. The disputes between breeders of draught horses and light horses seem now to have been diminished by the fact that it seems possible to mark the limits outside which an extension can hardly take place. Barriers raised by environment, chiefly climatic conditions, also restrain expansion.

KRONACHER (13) was therefore right in saying that this check on disputes is all in favour of horse-breeding in general. The breeding of draught horses needs time to consolidate and become uniform and, as in the majority of countries, this form of breeding has been established with the aid of interbreeding with foreign blood, it must still have time for adaptation to special local conditions determined by nature and economic circumstances. This consolidation will not be assisted if breeds of draught horses are reared in regions where they serve no useful purpose and they only enter into competition with and hinder the breeding of pedigree stock, which already has enough difficulties to contend with. The harmful effect of transportation into unfavourable environment on horse-breeding is much more serious than the advantages gained by the sales of a few breeders. The criticisms that have been made have only injured the reputation



of the breed and have not affected those responsible for the unwise measures taken.

In the west, north, north-west and in many regions in central Europe, the breeding of draught horses is strongly established and has eliminated competition and, although less rapidly than previously, it is penetrating into neighbouring regions. An improvement in breeds of draught horses may also be observed in places where the stocks are still mixed, and it must be admitted that, during the crisis, breeders of draught horses have suffered less than breeders of light horses. On the other hand, it should be noted that in the post-war period, draught horses ceased to be bred in certain regions, chiefly in south-east Europe, on account of the agrarian reform in addition to conditions of environment unfavourable to such breeds, as, in these districts, these breeds were previously raised almost exclusively by the great land owners.

As regards the area over which draught horses are bred in Europe, *Belgium* (14) may be taken as the point of departure, since in this country horse-breeding is almost exclusively confined to these breeds. Belgian horse-breeders have excellent native material at their disposal and, in a relatively short time after the war, were able to fill up the gaps it left behind. In this country breeders direct their efforts principally towards uniform breeding.

The development in *Germany* is particularly important, as the large requirements in this country for horses before the war profoundly influenced horse-breeding in the neighbouring countries. The development in and composition of the stocks of horses in Germany may be seen from the census taken by the German Agricultural Society (D. L. G.) (15). Statistics are available obtained from the censuses of 1898, 1911 and 1928, but only the first and last are comparable. The 1911 census, based on certain inaccurate principles, cannot be taken into consideration. Table XV has been compiled from the figures available (16).

TABLE XV. — *Composition of stocks in Germany in 1898 and 1928.*

	1898	1928
Light horses . . . . .	71.8 % of stock	51.1 % of stock
Heavy horses . . . . .	28.2 %	48.9 %

During the last 30 years, the light horses have increased by 20.7 % of the total number at the expense of the heavy horses. The situation varies greatly from one part of the country to another. In 1928, the situation, excluding the small regions, was as shown in Table XVI.

The Central Statistical Office of the Reich (17) gives an idea of the present development and, as from 1933, has provided data regularly on the utilisation of State stallions and approved privately owned stallions, according to breeds.

TABLE XVI. — *Distribution of the different breeds in Germany in 1928.*

Predominance of light horses (more than 70 %).	East Prussia, Marks of Posen, West Prussia, Hanover, Saxony, Oldenburg.
Predominance of heavy horses (more than 70 %).	Province of Saxony, Hesse-Nassau, Rhineland, Bavaria, Brunswick, Anhalt.
Marked increase of heavy horses (more than 20 %).	Bavaria, Schleswig-Holstein, Brandenburg, Marks of Posen, West Prussia, Hesse-Nassau.

Table XVII shows a recent increase in the breeding of heavy horses in Germany. The use of heavy stallions is striking, chiefly in East Prussia where, in 1933 as many as 39 100 mares were served by heavy stallions and only 20 000 by light stallions. The use of heavy stallions predominates in the following states: East Prussia, Westphalia, Rhineland, Saxony, Hesse-Nassau, Silesia, Hohenzollern, Bavaria, Baden, Thuringia, Hesse, Brunswick, Lippe, Lubeck. On the other hand the use of thorough-bred stallions predominates in: Hanover, Pomerania, Brandenburg, Marks of Posen, West Prussia, Oldenburg, Mecklenburg, Saxony, Wurtemberg.

TABLE XVII. — *Total number and utilisation of stallions in Germany, excluding the Saar Basin.*

Years	Number of Stallions (1)			Number of mares (2) served by stallions		
	heavy	light	thorough-bred (3)	heavy	light	thorough-bred
1932 . . . . .	3 341	2 271	101	166 961	89 075	1 738
1933 . . . . .	3 487	2 438	108	191 701	125 742	1 905
1934 . . . . .	3 802	2 312	126	...	...	...

(1) State and approved and authorised stallions. — (2) By State, and by approved and authorised stallions belonging to private persons or co-operative societies, excluding stallions used exclusively for serving mares which are the property of the owner of the stallion. — (3) English, Arab, Trotters.

The great demand in Germany for heavy draught horses has also had a decisive influence on horse-breeding in the *Netherlands* (18), where the economic development of the country requires that special attention be given to this type of horse. In Table XVIII will be seen the development in this respect in the *Netherlands*.

TABLE XVIII. — *Development of horse-breeding in the Netherlands.*

Years	Number of stallions in use		Number of mares served	
	heavy	light	heavy	light
1902 . . . . .	200	503	14 827	34 975
1921 . . . . .	642	348	56 880	23 455
1927 . . . . .	562	188	33 834	7 169
1928 . . . . .	544	172	33 859	6 576
1929 . . . . .	482	153	27 141	5 806
1930 . . . . .	410	147	23 646	5 216

During the war, the breeding of heavy draught horses in the Netherlands was greatly stimulated by the absence of competition from Belgium and by the fact that a part of the Belgian stocks of horses, of great value to breeders, had taken refuge in this country before the advance of the German troops. According to STEGEN (19), the numerical development in horse-breeding in the Netherlands is favoured by the large extent to which heavy draught horses are used. The centre of this form of breeding is in the provinces of Limbourg and in Zeeland where they have spread rapidly. In spite of the extension of heavy draught horses, the breeding of thoroughbreds is still of importance from the economic point of view

TABLE XIX. — *Development in the stocks of stallions available ((approved and authorised national stallions) in France from 1913 to 1933.*

	1913	1920	1925	1930	1933
Thoroughbred . . . . .	792	540	469	466	451
Half-bred (1) . . . . .	2 589	2 163	1 564	895	844
Draught (1) . . . . .	2 138	2 411	3 705	4 955	4 954

(1) Breton postiers were classified as "draught" on 1 January, 1926.

In *Denmark*, according to STEGEN (19) the provinces where the breeding of draught horses is practiced are those which have suffered least during the crisis in horse-breeding. The relation between the light horses and heavy draught horses has changed in favour of the latter. The direction of horse-breeding is greatly influenced by Belgian blood, but, generally, the Jutland horses are the most numerous.

In *Sweden* the breeding of heavy draught horses has extended considerably in the southern and central parts of the country.

In *Poland* this form of horse-breeding has been generally confined to that part of the country which previously belonged to Germany. It has increased considerably, but without influencing particularly the total stocks of horses in the country. It appears that, in the northeast, the area in which this breeding is practiced is confined within the Baltic States.

The breeding of heavy draught horses is extensively practiced in *France*. The reasons for this development have already been mentioned above and are analogous to those observed in other countries. The development in the stocks of stallions available for breeding purposes clearly shows how horse-breeding has followed this tendency (20).

It will be seen from Table XX that the number of mares served indicates the same general trend (21).

TABLE XX. — *Number of mares served in France from 1920 to 1933.*

Stallions used for service	Number of mares served				
	1920	1925	1928	1930	1933
Thoroughbred . . . . .	3 461	4 530	5 510	5 300	3 941
Half-bred . . . . .	72 109	54 793	37 299	26 418	22 460
Draught . . . . .	215 803	237 923	325 307	242 565	223 266

Tables XIX and XX show that in France draught horses have gained ground at the expense of half-bred horses. It is true that as from 1928 the number of mares served by draught stallions diminished, but to a less degree, than the number of mares served by half-bred stallions, which has decreased to such an extent that the anxiety shown by those interested in this form of breeding can readily be imagined.

The data given above show a considerable increase in breeding draught horses in France, but they give no information as to the development in the different breeds and types in this group from a quantitative point of view. This is a very important question, particularly in France, as that country possesses a great number of native breeds of this type, which have contributed greatly towards the diffusion of heavy draught horses throughout the world and especially in countries outside Europe. Regarding this question, Colonel CHARPY (21) writes as follows: "The horse dealer must recognise that the present fashion is for a horse which is not typical of our country. The Brabançon horse resembles it in size, colour and imperturbable temperament. While our breeds are slowly being transformed, — the Boulonnais changing colour, the Percheron becoming darker, the Breton becoming larger, — measures should be taken to prevent the invasion of France either by Belgian horses, whose value is indisputable, or by valueless horses imported from everywhere under the pretext of selling them as meat".

M. GINIEIS (22) writes as follows on this subject: " In addition to a continuous progress, two essential facts characterise the evolution of the draught horse: the fashion for a heavy horse and the increase in the demand for the Percheron and the Ardennais. In our country, as in the majority of other countries, there is a demand for a heavy horse, with low stance, which is well represented by the Belgian horse, the draught horse of the North, and also by the Ardennais. With the conscious or unconscious intention of utilising animals with a large work output in order to diminish the number they employ, farmers show a preference for an increasingly heavy type of horse, as it is imagined that strength is in proportion to size ".

According to a map giving the distribution of the breeding centres for different kinds of horses in France, published in the special horse-breeding, number of the *Revue des Agriculteurs de France* (No. 6, 1935) the area of distribution of heavy draught horses in France is more or less limited by a straight line running from the south of the Vendée as far as Bâle. Outside this area another region, where the breeding of heavy draught horses is practiced, is found in the neighbourhood of Bordeaux.

TABLE XXI. — *Development of horse-breeding in Switzerland.*

Years	Stallions in the Federal dépôt		Number of approved stallions belonging to private persons	Societies of saddle horse breeders		Societies of draught horse breeders	
	Thorough-bred and half-bred stallions	Draught stallions		Number of Societies	Number of horses registered	Number of Societies	Number of horses registered
1906. . . . .	48	27	32	15	779	19	813
1912. . . . .	61	28	74	21	1 268	36	2 917
1918. . . . .	40	52	116	18	1 487	52	6 819
1924. . . . .	19	37	139	14	538	58	5 232
1930. . . . .	8	35	119	8	237	60	5 887

In *Switzerland* the breeding of heavy draught horses has also gained ground during the last few years. The history of horse-breeding in this country is similar to that in other parts of Europe (23). Since 1866, the State has encouraged the breeding of light horses of the saddle horse type to supply the requirements of the army. The results have been negative, but in spite of that breeding has been continued in the same direction. During the first years of the 20th century, the breeding of draught horses of the lighter type has been encouraged. A period of uncertainty began in respect of the direction taken by horse-breeding: at the same time, half-bred English stallions (Hackneys) were introduced, with stallions from Holstein and different breeds of heavy draught horses (Breton, Percheron, Shire horses and Belgian). The breeding of heavy draught horses has gradually increased over that of half-bred horses. The

change in the objective of horse-breeding is made clear by the change in the composition of stocks of horses at the Federal stallion dépôt at Avenches (24). While in 1904, a maximum number of stallions had been reached (105) belonging to 8 different breeds (thorough-bred English, Anglo-Norman, Hackneys, half-bred native, Norfolk Breton, Percheron, Shire horses, native draught horses), the number of stallions slowly diminished with the decrease that took place in the number of breeds. The majority of breeders gradually confined themselves to draught horses and abandoned the breeding of half-bred horses, since the first is less hazardous, while the half-bred is not an economic proposition and draught horse breeding is better adapted to the conditions on a peasant farm.

Table XXI shows the statistical data for stallions at the Federal dépôt and the development in the Horse-breeders Societies (23).

The largest area in which the breeding of draught horses is practiced is in the Bernese Jura. Other regions of less importance are the cantons of Sol-eure, Vaud, Fribourg and Bâle and of Berthoud (canton of Berne), but here and there in other parts of Switzerland, Societies of breeders of draught horses are also found. Half-bred horses are still raised at Finseideln, Pfaffikon, in central and west Switzerland, in the Lower Alps and in the north-east Jura.

In *Italy* the breeding of heavy draught horses (25) is confined to the northern regions. According to a new scheme of horse-breeding in the plain of the Po, the breeding of draught horses is based on the Belgian type. The Belgian horse is successfully bred chiefly in the neighbourhood of Cremona, its produce is principally employed in agriculture, the army preferring a horse of the *postier* type bred with a mixture of Belgian, but also of Percheron and Breton blood. The question which of these three types is preferable has not yet been settled. According to M. FORTICCHIA, the Bretons have not proved to be very satisfactory as they cannot be relied upon to transmit their qualities to their progeny. At present *postiers* are being bred from Percherons (26). In Venetia, Tridentina, Hafling and Noric horses are bred and in the rest of Italy half-bred horses.

The south-east of the area of heavy draught horse breeding is situated in the States which have taken the place of the former Austro-Hungarian monarchy. The major part of the heavy draught horse breeding in this region, with the exception of pure breeds of imported horses, is chiefly based on Noric horses (Pinzgauer), which have been improved by various western breeds, principally the Ardennais. This is the type most extensively bred in Austria at the present time.

In *Austria* (28) the relation between light horses and draught horses is as 1:5 or 1:6. The centre of breeding the draught type is found in the whole of the Austro-Bavarian Alps though chiefly in the Federal Province of Salzburg. An important district is also Carinthia.

In *Hungary* (29) heavy draught horses represent about 20 % of the total stocks of horses. They too are bred from the Noric, previously improved by Percheron stallions, but during the last 30 or 40 years only Belgian (Ardennais) horses are used for improving the Hungarian heavy draught horse, which may be divided into two varieties, Mura and Pinkafö. The first is the most important

and has penetrated further towards the south than the latter. It may also be observed that the breeding of heavy draught horses is constantly increasing in the west and south-west of Hungary, as the possibilities of exporting these horses are now relatively favourable. In the other parts of Hungary heavy draught horses are bred by the great land owners and not by the State.

In *Czechoslovakia* (30) the heavy draught horse is chiefly bred in Bohemia, Moravia and Silesia, in different horse-breeding districts.

In Bohemia the regions of the south bordering on Austria are those in which heavy draught horses are principally raised. In Moravia, they are bred in the mountainous districts, while in the district of the Hanna, the plains of western Moravia and Moravian Slovakia the breeding of light horses is practiced (31). In the southern part of Bohemia the Belgian and Noric types are principally bred. In this region the native horse closely resembles the Noric breed.

Table XXII shows the distribution of stallions of different breeds used in Czechoslovakia and also gives a survey of the tendency shewn by horse-breeding in this country (32).

TABLE XXII. — *Stocks of stallions used in Czechoslovakia in 1930.*

Breeds	Bohemia		Moravia		Silesia		Slovakia		Russian Carpathians	
	National studs of Pisek and Nemosse	Private ownership	National stud of Tumačov	Private ownership	National stud of Tumačov	Private ownership	National studs of Nitra and Prešov	Private ownership	National studs of Turi Remety	Private ownership
English Thoroughbred	1	—	4	—	—	—	17	—	3	—
English Half-bred . .	7	—	60	—	—	—	83	—	26	—
Oldenburg . . . . .	163	—	53	—	—	—	7	—	—	—
East Friesland . . . .	23	—	3	—	—	—	1	—	—	—
Hanover . . . . .	5	—	—	—	1	—	1	—	—	—
Nonius . . . . .	8	—	11	—	—	—	194	115	10	—
Anglo-Norman . . . .	9	11	4	—	—	—	1	—	—	—
American Trotter . . .	—	—	1	9	—	—	2	—	—	1.
Anglo-Arab . . . . .	1	—	—	—	—	—	27	—	5	—
Kladrub . . . . .	—	—	—	—	—	—	—	—	1	—
Half-bred Arab . . . .	14	—	12	—	13	—	84	—	20	—
Lipizzan . . . . .	—	—	—	—	1	1	80	—	15	—
Noric . . . . .	3	—	1	—	47	5	—	—	—	—
Belgian . . . . .	297	21	154	16	—	—	—	—	—	—
Huzzul . . . . .	—	—	—	—	—	—	28	—	21	—

Table XXIII gives particulars on the use of stallions in Czechoslovakia (33).

The breeding of heavy draught horses is constantly declining in *Yugoslavia* and *Rumania*, even in regions where they were bred before the agrarian reform. The reason, as has already been said, is the change in the situation of agricultural production following the agrarian reform.

TABLE XXIII. — *Number of mares served by national stallions in Czechoslovakia in 1933.*

Stallions	Number of mares served			
	Bohemia	Moravia-Silesia	Slovakia	Sub-Carpathian Russian
Light . . . . .	11 392	6 131	30 061	2 708
Heavy . . . . .	18 407	10 352	29	—

In the light of what has previously been stated it is possible to give the area, in broad outlines, within which heavy draught horses are bred in Europe. Towards the north: the southern and central parts of Scandinavia – towards the east: the Baltic States, West Poland – towards the south-east: the northern part of Czechoslovakia, Western Hungary and the south of Yugoslavia – towards the south: North Italy and, in France, within a line drawn from Bâle to the south of the Vendée. Naturally, relatively small isolated regions are found where heavy draught horses are bred as in the Midi of France and a few districts in Russia. Within this area both draught horses and light horses are bred and perhaps Belgium is the only country to be described a region where the uniform breeding of heavy draught horses is practiced. It must not however be forgotten that, in the other countries, there are some districts of varying extent, where only one or the other of these types is raised. In various countries the authorities who direct horse-breeding have somewhat strict ideas as to the suitability of a parallel breeding of different strains and therefore determine the various regions for breeding.

After having thus discussed the breeding of horses on the Continent of Europe, it will be of considerable interest to add a brief notice of the position in *Great Britain*, the classic home of modern horse breeding.

A communication sent by Mr. J. EDWARDS (Cambridge University, England) makes it possible, by reference to the registrations in the stud-books each year, to give an indication of the relative number of the different breeds of horses in Great Britain. It is however difficult to follow precisely the course of development, as no figures are available for the total numbers of the various breeds, which are not so distinguished when the censuses are taken. Hence the data in the following Table, which shows the numbers of horses registered in the stud-books for the years 1903 and 1933 respectively, must suffice to give a general idea of the distribution of the principal breeds, always bearing in mind that the registered stud-book animals form but a small proportion only of the total number of horses kept.

The reduction in the Shires is very marked, but the Clydesdales and particularly the Suffolks have well maintained their position. It should also be noted that a start has been made with breeding Percherons. Cleveland Bays, which



TABLE XXIV. — *Numbers of horses registered in the stud-books in Great Britain.*

	1903			1933		
	Mares	Stallions	Total	Mares	Stallions	Total
<i>Breeds of Heavy Horses.</i>						
Shires . . . . .	3 420	935	4 356	884	281	1 165
Clydesdales . . . . .	444	406	850	496	145	641
Suffolks . . . . .	370	162	532	444	69	513
Percherons . . . . .	—	—	—	60	30 (a)	90
<i>Breeds of Medium Weight Horses.</i>						
Cleveland Bays . . . . .	146	75	221	7	4 (a)	11
<i>Breeds of Light Horses.</i>						
Hackneys . . . . .	755	304	1 059	86	47 (a)	133
Hunters (b) . . . . .	138	17	155	265	2 (a)	267
Arabs . . . . .	—	—	—	31	27 (a)	58
Thoroughbreds . . . . .	(c) 5 768	239	6 007	(c) 7 756	339 (d)	8 095
<i>Breeds of Ponies.</i>						
National Pony Stud-Book. .	202	67	269	466	195	661
Shetlands . . . . .	67	11	78	36	13	49

(a) Estimated from Stud-book covering more than one year's entries.

(b) Thoroughbred stallions are mostly used to breed Hunters.

(c) Total number of brood mares in year stated.

(d) 1932 figures.

are medium weight horses, show a remarkable falling off as also Hackneys, while on the other hand the number of Hunters and of Thoroughbreds has increased.

EDWARDS remarks that most of the horses employed in agriculture are of the heavy type, and the majority are non-pedigree Shires or crosses of Shires with Suffolks in the east of England, and with Clydesdales in the north, while in Scotland pedigree or non-pedigree Clydesdales predominate. Not much modification in type has taken place in the last 30 years, but now that conditions are changing, efforts are being made to meet them by suppressing the less satisfactory breeds in favour of those more useful. Now that the demand for heavy cart horses in the towns has declined, a more mobile type is favoured and the expansion of the Suffolk breed and introduction of the Percherons (both active, clean legged horses) is noteworthy. On the other hand the increasing use of pneumatic tyres on horse-drawn carts has tended to check the decline of heavy horses on the farms.

Light trap or van horses have almost entirely disappeared from the English roads, but light sporting horses (racers or hunters) do not show much decline. Ponies bred in mountains, moors and forests are in decreasing request for work in mines, but there seems to have been but little change in the demand for ponies for children to ride.

Horse-breeding in countries outside Europe is not generally based on the same principles as in Europe, where horse-breeding is mainly national and under the direction of the central authorities. In the countries outside Europe private initiative plays a more important part than in Europe but unity of direction is frequently lacking. In this case breeding regions are not delimited and cross-breeding of the most varied kinds often takes place.

The previously quoted publication of the Department of Commerce of the *United States* (2) contains a Table, giving the numbers of thoroughbred horses registered in the United States in 1920 and 1930.

TABLE XXV. — *Thoroughbred horses registered in the United States farms in 1920 and 1930.*

Breeds	1 January, 1920	1 April, 1930
American saddle horses . . . . .	1 459	2 445
Arab . . . . .	—	315
Belgian . . . . .	10 838	8 841
Cleveland Bay . . . . .	—	18
Clydesdale . . . . .	4 248	1 454
French carriage horses . . . . .	—	19
French draught horses . . . . .	2 964	—
German carriage horses . . . . .	607	37
Hackney . . . . .	501	245
Morgan . . . . .	—	763
Percheron . . . . .	70 613	33 033
Shetland ponies . . . . .	—	451
Shire horses . . . . .	5 617	1 506
American Trotters . . . . .	4 021	2 334
Suffolk Punch . . . . .	—	235
English thoroughbreds . . . . .	3 801	10 953
Other breeds . . . . .	15 718	4 731

According to the original text of this publication: " With the introduction of the tractor considerable numbers of heavy farm draught horses of a high type were disposed of to the city trade. Horses remaining on farms were often of the lighter type of saddle, draught or general-purpose kinds, differing considerably from the horses sold. For several years, moreover, there have been shipments of the lighter types of western horses into the main breeding States. While suitable for many purposes these horses do not form a good basis for breeding heavy types of farm horses, particularly in those areas where Percheron and Belgian draught breeds predominate. This factor doubtless contributes in no small measure to the decrease in the number of colts in the farm-breeding area of the Middle-West States, particularly Iowa, Missouri and Nebraska. The lighter-type animals, however, are suitable for raising the lighter type of cotton mules, but that such breeding is not general may be seen from the very material decrease in mule colts.

" Perhaps the most important changes in type are indicated by the changes in numbers of registered breeding animals of the lighter grade, i. e., coach horses,

Hackneys, Cleveland Bays, Morgans, etc.. The breeding of trotting and saddle horses still continues, although the standardbred trotters are much fewer in number. This kind of breeding is not carried on very generally by farmers, but rather by specialists and horse-breeders. The rearing of saddle horses, as indicated by the association records, appears to have held its own. The slight change in numbers of this type of horses in the range areas is worthy of note. Even in that section the replacement rate is less than the mortality. What influence the inferior or lighter weight animals will have upon the further supply of horses is rather difficult to forecast, but the increasing proportion of such animals offers a handicap to the production of a satisfactory grade and number of heavy draught animals ”.

The relatively small number of horses registered (about 120 000 in 1920 and only 67 000 in 1930) makes it doubtful whether conclusions can be drawn as to the general development in the numbers cited. It should also be remarked that, in some breeds, such for example as thoroughbreds, registration of an animal plays a very important part in the case of sale, while it is not necessary in respect of draught breeds, a circumstance which may give a wrong idea of the general situation. In fact, the numbers of thoroughbreds registered has increased from 1920 to 1930, while those of Percherons, Belgian and Clydesdales has decreased. It is noteworthy that, among the breeds of heavy draught horses, the Percherons still predominate, but the decrease in their numbers was relatively much greater than in those of Belgian horses which follow immediately after the Percherons as regards numbers, although the category “ French draught horses ”, which was estimated separately in 1920, was included with the Percherons in 1930.

As is shown by the report (34) of the United States Bureau of Animal Industry for the year ending 30 June, 1934, attempts are still made in the United States to produce new breeds which will correspond more closely to present requirements than the breeds now existing. Cross-breeding has even been tried between heavy draught horses and thoroughbred English horses. In this report it is stated that a higher type of draught and saddle horse has been obtained by cross-breeding with thoroughbreds and Morgans. Cross-breeding between thoroughbreds and Percherons has given a new type of draught horse that seems promising. The object of these trials was to develop cross-breds capable of producing horses more suitable for present requirements from the points of view of pleasure, utility and the farm.

The changes that have taken place in the stocks of approved stallions in *Canada* and chiefly in the Prairie Provinces are shown by a report presented to the World Grain Conference at Regina, Canada (35).

In Manitoba, the stocks of approved stallions were composed as follows in 1931: 93 % heavy draught; 7 % light type. Among the first, 49 % were Percherons, 41 % Clydesdales, and about 10 % Belgian. The remainder consisted of Shires and Suffolk Punches. In the period 1918 to 1930 there was a reduction of 60 % in Clydesdales and 50 % in light stallions, while Percherons increased by 34 % and Belgian by 60 %.

In the three Prairie Provinces (Manitoba, Saskatchewan and Alberta) together, the total number of approved stallions has decreased by 72 % as follows: the

number of Belgian horses by 9.6 %, of Percherons by 59 %, of Clydesdales by 81 %, and of all other breeds together by 88 %. The use of grade stallions can only be permitted in Saskatchewan and the majority are of the draught type. The total number of stallions and the development in these numbers are shown in Table XXVI.

TABLE XXVI. — *Total Stallion enrolment - Canada, Prairie Provinces, from 1918 to 1931.*

Breeds	1918	1922	1926	1929	1931
Clydesdales . . . . .	2 729	1 468	1 036	782	507
Percherons. . . . .	1 713	1 391	1 079	848	699
Belgian. . . . .	271	360	320	298	245
Other draught breeds . . . . .	184	79	44	37	19
Thorough bred and Standard-bred . .	196	53	68	82	67
Other breeds } Thoroughbred . . .	72	28	23	21	10
	573	86	52	25	31
<i>Total . . .</i>	5 735	3 465	2 628	2 093	1 578

It is interesting to note that in the *Union of South Africa* (33) observations similar to those in the United States have been made from the point of view of the effect of introducing tractors into agriculture. As requirements for heavy traction power had been satisfied by the tractor, the heavy weight horse and draught oxen were less in demand. The demand for heavy weight horses is very small and is met by the Government stud, where Percherons and Suffolk Punches are bred. It appears, moreover, that the climate of South Africa is not suitable for horses with a heavy body, short pasterns and long fetlocks. Experience has proved that in South Africa what is required is a light type with much bone. For purposes of improving the breeds, English thoroughbreds, American trotters and Arabs are used. Light horses are frequently crossed with heavy and the mares from this grade breeding are utilised for breeding mules, as it has been observed that the best mules are thus produced. This production has had a considerable influence on the destruction of the stocks of horses in South Africa, as the best mares have been used for breeding mules and the inferior type of mule thus produced has resulted in the introduction of heavy horses.

\* \* \*

From the above it will be seen that an attempt has been made to give a survey of the numerical changes affecting categories of horses in different countries in so far as the information available has permitted. This survey also gives a certain idea of the changes that have taken place in the distribution of various breeds and types.

It appears that, in respect of draught horses, the development has been characterised by a considerable extension in Belgian horses and in breeding

based on their type. In spite of the fact that draught horses have been introduced into regions where no native draught horses, or at best very few, existed, and experiments have been made with the most varied breeds of this type, it seems that these trials are now being made to a less extent than in previous years. As regards uniformity in draught horse breeding, the Belgian horse appears to be increasingly used, both for breeding pure Belgium stock and for improving other breeds. These observations are confirmed by the statements made by Colonel CHARPY and M. GINIES as cited above (21, 22), by the changes in the stocks of stallions in Sweden, Germany, Czechoslovakia, Hungary, etc., where English and French breeds, which were previously used for improvement purposes, have been replaced by Belgian horses and where although the original types are rarely imported, breeding continues on a Belgian basis.

This development is clearly shown by the following information on the development in the composition of stocks of stallions in certain national studs in Germany. In 1871 there were, in the national stud of Wickrath (Rhineland), 2 Pinzgau stallions, 10 Suffolk Punches, and 4 Clydesdales, that is, 16 stallions of the draught horse type and also at the same time 28 light stallions. Ten years later, among 59 stallions, 33 were Belgian, and in 1912 the registers show 211 stallions, of which 23 were Belgian and 84 Rhineland draught horses. In 1927, the number of stallions was 110 of which 23 were Belgian and 84 Rhineland draught horses on a Belgian basis. In the Kreuz stud (Saxony), from 1855 to 1880, Percherons and Suffolks were first introduced and afterwards Clydesdales and Belgian. In 1855 Shire horse breeding was started and, with this exception, only Clydesdales and Belgian horses were retained. In 1900 half the stallions were Shire horses, but it was soon seen that the breeding of these horses was not satisfactory in this region, and in 1919 the last stallions of this breed had disappeared from the stud and in Saxony at the present time only Belgian and Rhineland draught horses are raised. A similar development in stocks of draught stallions may be observed in other national studs in Germany where this type of horse is bred (Dillenburg, Cosel, Leubus, Labes).

It appears that in North America the tendency has been very similar. In Canada and the United States, Percherons predominate and there are also considerable stocks of draught horses of English breeds, but, as will be seen from Tables XXIII and XXV, although the total number of stallions has decreased latterly, the reduction in stocks of the Belgian type has been comparatively less and at the present time this breed has gained considerable ground.

After the Belgian, the English and French breeds are the most important, but the development in the Noric breed and its continuous progress must also be remarked, especially in recent times. It is well established in Bavaria, Austria, Czechoslovakia, Yugoslavia and Hungary and it appears that, in its lightest form, it will play a pioneer part in the regions of intensive cultivation in the south-east of Europe, where draught horses are not yet bred or only to a very small extent.

Another very important phenomenon is that draught horse breeding, favoured by economic conditions, has penetrated even to regions where this type of horse was previously unknown or only rarely seen, and is practiced as breeding of pure

stock or as cross breeding with existing breeds (absorption cross breeding). As this breeding was based on importations of different origins, it was not uniform, but latterly there has been a definite tendency to consolidate breeding by standardizing the different varieties. The products of lines showing the best qualities have been assembled and an attempt is made to render breeding independent of importation and to continue with the material bred in the country. The future will show whether this movement, encouraged by present autarchic tendencies, has been started too late.

Our observations on the competition between draught and light horses also provide information on the situation of light horse breeding in general. As has already been seen, the relation between light and draught horse breeding has been changed in favour of the latter in almost all regions where both types were previously bred. The reasons for this have been examined and it is unnecessary to repeat what has already been said. It is certain that light horse breeding would have decreased to an even greater extent if the direction taken in breeding this type had not been completely altered and adapted to the changed economic conditions. These changes will be shown later on, but the general observation may be made that in light horse breeding, the changes have come about rather by an evolution in the breeds than by the substitution of one breed for another. Space does not allow the changes in the diffusion of different breeds of light horses to be enumerated and sufficiently accurate statistics are not available. A brief outline only of the tendencies in this development can be given in this article.

Table XXVII shows the development in stocks of light stallions in the national studs in Prussia and their distribution in different classes (I)

TABLE XXVII. — *Stocks of light (warm blut) stallions in the national studs in Prussia from 1911 to 1929.*

Years	Total stocks	In % of the total stocks		
		Light saddle type	heavy saddle and light carriage type	Heavy carriage and very light type
1911-1913 . . . . .	2 829	20 1 %	50 2 %	29 7 %
1924 . . . . .	2 398	8 9	47 8	43 3
1927 . . . . .	2 004	7 1	44 2	48 8
1929 . . . . .	1 430	7 2	38 8	54 0

The statistics in this Table show very clearly the line of development especially in western and central Europe, which is a logical consequence of the general development already described in broad outlines. Where light horses were not replaced by draught horses, heavier breeds and types have been preferred. A similar development has taken place in countries where only light horses are bred or where the policy is to direct horse-breeding in this direction.

This is chiefly the case in countries in eastern and south-eastern Europe where there are still large stocks of horses, which are too small or of a primitive type and where attempts are made to improve these horses and increase their weight by cross-breeding as this kind is no longer saleable on the world markets. These remarks are confirmed by the diffusion of light draught horses in these countries such as different German breeds and the Hungarian Nonius breed (10, 29). Light horse breeding in these countries is at present directed towards producing a more massive kind of light horse, suitable for all agricultural work and rapid traction and also for army purposes.

A more pronounced tendency is also noticeable in light horse breeding to arrive at greater uniformity of the stocks. The different small local varieties are assembled and well defined breeds are raised, the numbers of which correspond to the various regions in the countries.

### 3. — EVOLUTION OF THE VARIOUS BREEDS OF HORSES.

As has already been stated, horse-breeding adapts itself to changing conditions from the qualitative point of view by a change in the composition of stocks and, in thus developing, the breeds come to correspond to the changed conditions. Selection in the direction of varieties which approach most nearly to the ideal type also takes place. The breed is no longer a constant factor and forms and aptitudes change under the influence of environment and the action of the breeders.

The present progress made in the science of breeding and feeding has accelerated the new tendency in horse-breeding and, as has been said above, the objects of the breeder are determined by the new methods of utilising horses.

A change in selection has been made necessary, chiefly in respect of breeds of *light horses*. Several uses for horses (carriage and luxury horses, etc.) have almost ceased to exist. At the present time different types of saddle horses are required, following the new methods of riding and warfare. The farmer has become the most important buyer of this type of horse while market conditions have been greatly changed.

A few examples will now be given to show how the different breeds have been adapted to new requirements.

The Norman (21, 22), which was previously a carriage horse with the style, length of skeleton and size that made it popular for luxury carriage work, has been obliged to change into a saddle type of horse and breeders have had to work on these lines without sacrificing their best brood mares. By judicious mating the qualities which are desirable in a carriage horse but not in a saddle horse have been corrected. Shoulders are sloping, hocks are straighter, and action is longer, but above all breeders have preserved the size and have closely followed the directions given them; thus the Norman has become a true type of saddle horse, well set in its lines, light and medium weight and having size and distinction. The Norman has also had to develop in another direction, that is, towards a *postier* type, which, having more size and lower stance, while preserving the same degree of spirit, has become more valuable in trade and agriculture.

As has already been seen, in the east of Europe (39), light horse breeding has played a more important part than in the countries of the west. The question of type seems to have favoured the half-bred or a more or less light type of horse, which is suitable for regions where distances are great, snow is deep, roads are few, etc. The problem has been solved here by raising native breeds improved by selection, as for example in Finland, where they have attained many good qualities, or in Hungary where a half-bred with much bone is produced. It may be said that the problem of producing half-bred horses suitable for the saddle and the plough has been solved in Hungary by breeding the celebrated types of horses known as "Furioso" and "Gidran". In Germany the outstanding type of horse in East Prussia has been increased in size without losing the qualities of a saddle horse.

In Hungary attempts are still being made to increase the weight and the circumference of the chest of half-bred horses and to strengthen their frame. All these measures produce a type with low stance. The success which has been obtained will be shown by the following data: the modern type of half-bred English and Anglo-Arab (North-Star, Furioso, Gidran) has a chest circumference 5 to 10 % greater than before (in the Nonius 10 %); the weight has increased by 10 and 15 %, and the circumference of the cannon by 1 and 2 cm. A similar tendency may be seen in the breeding of half-bred horses in other countries in Europe (Austria, Czechoslovakia, Switzerland, etc.).

In Europe, trotters have had to undergo modifications. Trotters admirably suited for trotting speed have been transformed into a type of saddle horse which, though maintaining its speed, is capable of carrying a very heavy load. This is most remarkable in Soviet Russia (40) in the breeding of Orloff and half-bred American trotters. After having destroyed the private studs, attempts are now being made to build up breeding material for trotters on the basis of selection with a view to trotting speed and also strength.

A particularly important study of the development of breeds of horses has been made by Prof. H. HENSELER (41). In his work he has compared the results of different measurements of horses for breeding shown at various shows of the German Agricultural Society (D. L. G.) from 1904 onwards. He has completed this record by conclusions drawn from different monographs on certain breeds and has thus assembled material, which is all the more important in that it does not contain a simple description of the tendency and desire to develop horse-breeding in any particular direction, but gives figures showing the actual development that has taken place. It would take too long to reproduce here the statistics obtained by him, and only the more important results will be given. According to this authority the East Prussian horse had shown, up to the outbreak of war, a certain increase in weight, which was maintained at the same level. He mentions an increase in the length of the legs and a decrease in the depth of the chest. The chest circumference, the breadth of the chest and the circumference of the cannon have increased slightly. The weight has remained almost constant. Examples of this breed shown at the various D. L. G. shows have not gained strength.



In the Hanover horse there has been no marked increase in size. The animals examined had longer legs and the chest less deep; weight and chest girth have also slightly decreased latterly. The animals shown were taller and shorter than previously, and have taken on the square form, characteristic, according to HENSELER, of the saddle horse. In examining the utility horses of this breed, WOHLER also observed that, when the Hanover horse was bred as a saddle horse for the army, the back had to be kept short. After the war the breed had to be developed in a way suitable for multiform uses by lengthening the back slightly. HENSELER is of the same opinion, which is also very general, in respect of the development of the Hanover horse, but he observes that among the animals shown it was not possible to determine a change sufficiently marked to correspond with the object in view.

The Holstein horses have been less influenced by the wishes of military administrators than have Hanover and West Prussian horses. The Holstein already represented the model of a stronger type of light horse of the kind suitable for general utilisation. The form of this horse has remained almost unaltered, which shows that the type previously bred corresponds to present requirements. HENSELER notes a marked increase in the size of the Oldenburg horses; the height has decreased slightly, but the mass, weight and breadth have increased. The same phenomenon has been observed in the East Friesland horse, which has increased in depth, chest girth, length and weight.

*Draught horses* have developed in another direction from that of light horses. As it is only recently that they have been extensively bred on a large scale the stocks of thoroughbred horses available have been too small. Attempts have been made to eliminate foreign blood from stocks of mixed blood generally originating from a native breed of draught horse, crossed, according to former ideas of horse-breeding, with light horses, as for example the Schleswig draught horse.

The great difference in weight between the draught and the light horse is immediately noticeable. It was thought that the advantages of the draught horse lay chiefly in the weight and the mistaken view was held that traction power is in proportion to the weight of the body. It may be remarked, in following the development of the majority of draught breeds, that there has been an effort made to increase weight, stimulated by the fact that certain purchasers, chiefly the Americans, preferred very heavy horses, weighing about 1 000 kg.

Today a certain change of opinion is noticeable. On the one hand draught trials have shown that weight is not always in proportion to yield and that a horse which is too heavy has not always sufficient resistance, often having a delicate constitution and being difficult to feed. The fact that the United States are no longer buyers in the breeding market to the same extent as they were before has also contributed to the decrease in numbers of "mastodonic" horses. Also, within the United States, a change has taken place. There is less demand for horses of more than 800 kg., while the medium sized draught horse, thick-set and stocky, weighing about 750 kg., is readily purchased. Even State administrators now consider that the production of very heavy horses should be

discouraged. For example the Director of the SEYFFERT studs in Germany (42) is of opinion that efforts to increase size should not receive State support, except in so far as they correspond with the climatic, soil and other natural conditions of the farm.

It should however be observed that in practice horse-breeding has not always followed the directions and theoretical opinions given and that measures proposed have not immediately come into operation. Thus HENSELER states that the animals of the Rhineland breed, the most important draught horse in Germany at the present time, show an increase in size which is very remarkable. The length of leg has decreased, the chest has become deeper, there is an increase in weight. The Rhineland Belgian horses have increased over the original Belgian, which were shown in Germany before the war and were considered too big by German experts. The horses have become so heavy and they have increased so greatly in size that HENSELER wonders up to what point they should arrive from the technical point of view and above all what is the reasonable limit. The Schleswig draught horse, which, in comparison with other draught horses, was relatively light, has also increased in size according to HENSELER. They have increased in weight, in width of crupper and chest and in body length.

The same may be said of the Noric breed, though, according to DINCKHAUSER (28) this mountain breed loses much of its mobility with increasing weight.

The standard of the Percheron has not changed during the last 30 years. The only difference is that, in the shows, they have been classified into large and small. Before the war the United States were the chief purchasers of this horse and after the war Spain, Japan, South America and even Italy, which required lighter weight animals and animals of the *postier* type, so that at the present time there are more horses of 700 kg than the "mastodonic" types. In spite of this change the heavy type of horse still exists among the Percherons and, though the form has changed, the proportions of the skeleton have remained the same in the small horses.

In countries in Eastern Europe, where draught horses are bred, the climate prevents the development of a too heavy horse. Breeders, taking conditions of environment into account, attach more importance to mobility than to very large size.

E. MOSKOVITS.

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## **MISCELLANEOUS INFORMATION**

INTERNATIONAL COMMISSION FOR UNIFYING METHODS OF ANALYSIS OF SUGAR AND SUGAR PRODUCTS. — On 25 June, 1935, a commission was set up at the Ministry of Agriculture, Paris, for the purpose of constituting a National French Committee, in conformity with the provisions of the rules of the International Commission, to represent France on the said Commission.

The bureau of the French Committee consists of:—

*President:* M. TOUBEAU

*Reporter:* M. SAILLARD

*Secretary:* Henry François DUPONT.

The IX session of the International Commission should take place in London in 1936.

J. L.

## **BOOK NOTICES**

VERGNAUD. H. *Les engrais minéraux Composés en horticulture*, 24 p., Paris 1935. Bureau central de renseignements agricoles et de propagande.

An extremely clear and well written pamphlet for the purposes of propaganda. The text contains important scientific data.

This form of propaganda is to be highly recommended and is of great practical value.

G. R.

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# MONTHLY BULLETIN

OF

## AGRICULTURAL SCIENCE AND PRACTICE

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### ORIGINAL ARTICLES

#### THE MECHANISATION OF AGRICULTURE AND WHEAT GROWING THROUGHOUT THE WORLD

##### INTRODUCTION.

In speaking of the mechanisation of agriculture today, thought generally turns towards the development of the use of machinery after the war and the fact that this phenomenon only represents a part of the development, which has been taking place during the last 100 years, is forgotten. Mechanisation started with the invention of the iron plough, the harvester and thresher and has been continued at the present time with the progress of the motor which has had particularly profound effects on the structure of agriculture.

The increase in the use of agricultural implements led in time to a greater use of animal traction and afterwards to the use of steam engines. Both of these have found an active competitor in the internal combustion engine when, after the war, the necessity arose of providing food for the population in the absence of a sufficient number of workers and draught animals which led to the construction of the first utilisable types of tractors. Since then there has been a continuous improvement in the construction of tractors which have also become less expensive, so that, in spite of the set backs due to the unfavourable economic situation, their utilisation has been increasingly extended.

It is owing to certain essential advantages that the tractor possesses over animal and steam traction that its influence has been so profound on the total agricultural economy and chiefly on the cultivation of wheat. We will only draw attention here to the possibility offered by the tractor of rapidly performing, that is, in the proper time, the work that could only be done in the most satisfactory way during a limited period, and also the possibility of developing for agricultural purposes regions which, up to now, it has not been possible to cultivate owing to the lack of labour and to the difficulties of obtaining forage for animals. The tractor widens the radius of activity of human labour far beyond what was possible with animal traction and renders it far less laborious. On the other hand, greater expenditure is incurred in working costs on the purchase of fuels, lubricants, spare parts, etc; but, however, thanks to the cultivation of larger areas and consequently the obtaining of greater harvests in normal conditions, the use of the tractor results in a reduction in the general costs of produc-

tion. That the tractor has really extended the radius of human labour is proved by the fact that there has been a considerable increase in the average size of mechanised farms run by a single family in countries where insuperable obstacles have not prevented an extension in the size of properties.

Difficulties arise when it is a question of profiting by the advantages obtained by the use of tractors in farms with a limited area. Up to the present it has not been possible to construct tractors below a certain minimum size which are satisfactory from the economic and technical points of view, so that, in small farms animal traction will for some time continue to be used in preference to mechanised traction.

In order to estimate the suitability of employing mechanical traction, a point of primary importance must not be lost sight of, that is, the incidental costs incurred in the use of tractors are high, but the fixed costs low, while with animal traction the incidental costs are low and the fixed costs are considerable. In fact, the tractor involves considerable expenditure in working, but very little when not in use, while draught animals cost comparatively little more when working than when at rest and may be said to require a continuous average expenditure.

It follows that tractors may be most suitably used where a piece of work must be accomplished in a short space of time. On the other hand, animal traction may be used more economically when the requirements for traction are distributed as evenly as possible throughout the year. On account of the high working costs, the greatest profit must be obtained from a tractor when in use, but at the same time care must be taken to not work the tractor to excess, which often happens, seeing that the engines of tractors, like all internal combustion engines, are not very flexible.

The tractor gives the best results in specialised or single forms of cultivation where temporary periods of high pressure of work alternate with long periods of rest. Consequently its use is also indicated for periods of intense work in farms where the regular work is carried out with teams.

Unfortunately very little information exists on agricultural machinery throughout the world. Tables 1 and 2 give an idea of the number of the more important agricultural machines and implements according to census made in various countries.

The most important factor, when estimating the state of mechanisation in different countries, is the number of tractors employed and the number of machines used in harvesting, chiefly harvester-threshers. Table I shows that the United States, Russia and Canada possess the greatest number of tractors; these are also the greatest wheat producing countries in the world. Argentina and Australia, which are the next largest wheat producing countries, possess only a relatively small number of tractors, explained by the low cost of teams and their up-keep which results in the use of tractors and imported fuels being an economic proposition in only certain determined cases.



TABLE I. — *Number of motor machines utilised in agriculture in various countries.*

Countries	Year of last census	Steam engines and locomotive engines	Tractors	Fixed internal combustion engines	Electric motors	Hectares of cultivable land per 1 tractor
<i>Europe</i>						
Austria . . . . .	1930	788	885	19 532	50 384	2 235
Bulgaria . . . . .	1933	...	1 617	...	...	2 300
Denmark . . . . .	1923	8 085	2 005	14 783	39 636	1 310
Estonia . . . . .	1929	1 108	555	1 622	...	1 900
France . . . . .	1930	...	*) 20 000	...	...	*) 1 000
Germany . . . . .	1933	15 505	24 118	73 380	1 169 841	850
Great-Britain . . . .	1931	2 453	21 106	81 309	2 896	170
Hungary . . . . .	1933	...	3 790	...	...	1 475
Ireland . . . . .	1929	578	797	2 430	177	1 875
Italy . . . . .	1934	16 986	30 210	10 003 (2)	37 274	425
Latvia . . . . .	1930	2 233	313	1 166	...	6 280
Lithuania . . . . .	1930	1 103	544	2 480	325	4 830
Norway . . . . .	1929	...	889	4 380	17 275	900
Switzerland . . . . .	1929	...	1 130	2 749	43 498	445
U. S. S. R. . . . .	1934	12 037	196 972	33 638	6 247	600
<i>America</i>						
Argentina . . . . .	1929	...	14 700	...	...	1 760
Canada . . . . .	1931	...	105 360	179 705	18 639	225
Chile . . . . .	1930	2 838	600	1 451	962	5 116
United States . . . .	1930	*) 25 000	920 021	1 131 108	386 191	145
<i>Africa</i>						
Algeria . . . . .	1929	1 670	5 752	...	...	1 030
Egypt . . . . .	1929	1 008	2 741	...	...	815
Tunis . . . . .	1929	...	1 200	...	...	2 445
Union of South Africa . . . .	1930	1 647	3 684	8 085	1 435	1 315
<i>Oceania</i>						
Australia . . . . .	1932	...	*) 27 000	...	...	*) 480
New Zealand . . . .	1934	(1) 398	5 062	21 758	29 164	180

(\*) Estimated number — (1) 1930. — (2) 1932.

Among other countries, an extensive use of tractors may be noticed in Italy where all means for increasing wheat production are encouraged by the State. The last column of Table I gives an idea of the distribution of tractors in relation to the agricultural area in different countries. According to these figures, the use of tractors is greatest in the United States where there is 1 tractor per 145 hectares of cultivable land. Great Britain, New Zealand and Canada follow, and then Italy. The number of steam engines and locomotive engines has diminished in every country in comparison with times past. An advanced degree of electrification may be

remarked in Germany and Norway. Also in New Zealand the use of electricity in agriculture has increased greatly during the last few years.

Table II shows that the greatest wheat producing countries also use harvester-threshers for preference, that is, the United States, Australia, Russia, Argentina and Canada. Exact information is unfortunately not available for Australia, but it may be supposed that, with regard to the use of harvester-threshers, her place is between the United States and Russia.

TABLE II. — *Number of machines utilised for cereal growing in various countries.*

Countries	Year of last census	Seed drills	Mowers and Harvesters	Harvester threshers	Threshers
<i>Europe</i>					
Austria . . . . .	1930	26 535	24 866	...	114 469
Bulgaria . . . . .	1933	7 137	8 302	...	3 365
Denmark . . . . .	1923	97 807	156 785	...	114 344
Estonia . . . . .	1929	5 750	30 732	...	9 359
Germany . . . . .	1933	614 200	1 308 013	...	999 771
Ireland . . . . .	1929	50 898	124 408	...	10 195
Italy . . . . .	1934	*) 100 000	*) 80 000	...	27 145
Latvia . . . . .	1930	6 764	48 081	...	17 127
Lithuania . . . . .	1930	4 374	17 479	...	44 208
Norway . . . . .	1929	27 012	97 690	...	...
Switzerland . . . . .	1929	10 496	(1) * 73 708	...	29 966
U. S. S. R. . . . .	1934	769 285	1 308 030	23 061	445 223
<i>America</i>					
Argentina . . . . .	1929	...	*) 47 000	*) 22 000	*) 9 000
Chili . . . . .	1930	3 204	12 630	239	4 542
Canada . . . . .	1931	...	(2) 431 403	8 917	105 544
United States . . . . .	1930	...	...	60 803	...
<i>Africa</i>					
Algeria . . . . .	1929	4 891	22 029	440	1565
Egypt . . . . .	1929	...	...	...	569
Union of South Africa . . . . .	1930	53 754	10 232	...	...
<i>Oceania</i>					
Australia . . . . .	1929	78 793	(3) 110 807	...	1 907
New Zealand . . . . .	1930	...	15 484	...	418

(\*) Estimated number. — (1) Mowers only. — (2) Binders only. — (3) Including harvester threshers.

In respect of the use of harvesters, the United States certainly occupies the first place. These machines are also extensively used in Germany and Russia.

Following this short introduction, a description will now be given of the state of mechanisation in different countries.

# I. — ASPECTS OF AGRICULTURAL MECHANISATION IN OVER-SEAS COUNTRIES.

United States of America. — Agricultural mechanisation is most marked in this country. Table III gives a survey of the development in the use of energy in agricultural in this country. The number of the sources of mechanical and animal energy is indicated in units of thousands, their power in thousands of HP. The HP has been calculated on the basis of estimates established by the Department of Agriculture in the United States. It will be seen that the total mechanical and animal power available to agriculture has risen from 27.9 million HP in 1910 to 37.5 million in 1920 and 70.5 million in 1930. The energy contributed by mechanical power during this period was 6.8 — 16.2 — 53.3 million HP and by animal power 21.1 — 21.3 — 17.2 million HP, that is, mechanical power has increased at the expense of animal power. The diminution in draught horses from 17.2 million in 1920 to 12.9 million in 1930 is particularly remarkable, while the number of tractors has increased from 246 083 to 920 021 during the same period. According to an intermediate census, the number of tractors in 1925 was 503 935. The figures of the Department of Agriculture show that the 70.5 million HP available to agriculture in 1930 provided, during the year, about 16 822 million HP-hours of work accomplished. Of this figure, 8 236 million HP-hours were provided by mechanical power and 8 585 million by animal power. Of the HP-hours, 4 070 million were supplied by tractors. Expressed in relative figures, this means that 51 % of the work done

TABLE III. — *Development of motor power in agriculture in U. S. A.*

	Number in units of thousands			Power in thousands of HP		
	1910	1920	1930	1910	1920	1930
Windmills . . . . .	900	1 000	1 000	297	330	330
Steam engines . . . . .	72	70	25	3 600	3 500	1 000
Gas engines . . . . .	600	1 000	1 131	1 800	3 000	3 030
Tractors . . . . .	10	240	920	500	4 922	22 001
Motor Lorries . . . . .	—	139	900	—	2 783	22 510
Motor for harvester-threshers . . . . .	—	4	61	—	120	2 200
Electric motors . . . . .	—	—	386	1) 000	1) 1 500	1 383
Light plants . . . . .	—	—	270	—	—	812
<b>Total mechanical power . . . . .</b>				<b>6 797</b>	<b>16 155</b>	<b>53 331</b>
Horses 2) . . . . .	17 430	17 221	12 889	17 174	17 264	13 025
Mules 2) . . . . .	3 787	4 652	5 273	3 017	3 700	4 140
Oxen . . . . .	640	370	—	640	730	—
<b>Total animal power . . . . .</b>				<b>21 131</b>	<b>21 340</b>	<b>17 171</b>
<b>Total mechanical and animal power . . .</b>				<b>27 928</b>	<b>37 495</b>	<b>70 502</b>

1) Including light plant. — 2) Over 2 years old.

in one year was carried out by animals, while these only represent 24 % of the sources of energy available to agriculture. Tractors supply 24.2 % of the total annual HP-hours, while they represent 31.2 % of the available sources of energy.

The difference in the total utilisation of tractors and horses during the course of one year is explained by the fact, already referred to above, that the incidental costs incurred in the use of tractors results in them being only employed temporarily in periods of intense work while the high fixed costs incurred in the use of horses indicates that they should be utilised permanently as much as possible. It is true that since 1930 the use of tractors has also decreased in the United States following the economic difficulties that have arisen, but on the whole progress in their utilisation has not been arrested. At present it is estimated that there are 1.17 million tractors in use in the United States. In fact, mechanisation meets the requirements of agriculture which are not only confined to economic advantages, but also include the facilitation of labour and often a more satisfactory organisation of the farm. Thus the total mechanisation of wheat growing by means of the tractor and harvester-thresher does not only represent a noticeable reduction in the costs of production, but also a liberation for the American farmer from the burden of heavy costs in labour and teams during the threshing period. According to the Department of Agriculture of the United States, to produce 20 bushels of wheat per acre it was necessary to employ about 57.7 hours of manual labour in 1830, using rudimentary methods - about the equivalent of 8.8 hours of manual labour in 1896, using the binder and thresher the equivalent of only about 3.3 hours of manual labour in 1930, using the harvester-thresher. The successful utilisation of the harvester-thresher is dependent on a dry climate. In these regions, during the last few years, it has been possible to reduce the costs of production to an unbelievable extent thanks to the technical progress shown by the use of the harvester-thresher combined with the tractor and motor lorry which has displaced the centre of wheat production in the United States towards the great plains although the increase in the railway charges, which took place at the same time, placed considerable obstacles in the way of an extension in cultivation in regions far from the markets, and, later, added to the disastrous fall in the price of wheat, aggravated the situation in these regions. These facts must be taken into account in order to understand the importance of mechanisation.

Table IV shows the areas cultivated in wheat and the yields obtained in the United States during the last few years, also the movement in wheat prices in gold francs. The increase in area cultivated from 1924 to 1929 is due to an impetus given to wheat production which would not have been possible without technical progress. This increase in wheat production in the dry regions has really been greater than would appear from Table IV as, in regions of more intense cultivation towards the east and west coasts, wheat has often replaced other crops. The catastrophic fall in prices of wheat following the heavy world harvests, was shortly arrested in the United States by State purchases at a guaranteed minimum price until this action for maintaining price levels had to be abandoned for lack of means.

TABLE IV — *Wheat production in the United States*

Years	Area in millions of hectares	Production in millions of quintals	Yield in quintals per hectare	Price in gold francs per quintal of Hard Winter 2 at Chicago
1909-13 .	19.1	187.8	9.9	17.14
1921	25.8	221.8	8.6	35.80
1922	25.2	236.1	9.4	21.95
1923	24.1	217.0	9.0	22.71
1924	21.3	235.3	11.1	20.09
1925	21.1	184.1	8.7	33.70
1926	22.8	226.2	9.9	35.42
1927	23.8	239.1	10.0	26.25
1928	23.6	249.0	10.6	25.01
1929	25.6	223.8	8.7	23.41
1930	25.4	242.1	9.5	18.24
1931	23.1	253.7	11.0	12.73
1932	23.1	202.5	8.7	10.06
1933	19.4	144.0	7.5	11.05
1934	17.1	135.4	7.9	11.10
1935	21.1	161.9	7.7	(*) 11.04

(\*) From January to June

The fall in prices in 1931-1932 finally led to a reduction in the area cultivated. Agricultural distress has been more greatly felt during these years of crisis in completely mechanised farms than in farms where animal traction has been retained besides mechanical traction for the reason that the costs of up-keep for animals have also decreased considerably while the working costs for tractors have remained the same. This phenomenon has made itself felt to the greatest extent in countries where tractors and fuels have to be imported in part and cost relatively more than in the United States. In these countries, this state of affairs has often resulted in a marked return to draught animals. This may be considered as only a passing phenomenon compensated for by the subsequent improvement in technique and the adaption of tractors to economic circumstances as shown by the experiences of the last few years. Thus the development of low pressure tyres for tractors has considerably extended the possibilities of their utilisation as, in employing these tyres the loss of time incurred in adapting the wheels from road use to field work and vice-versa, has been eliminated. Recent tests have proved that low pressure tyres are superior to the iron wheels chiefly on dry and sandy soils, while they are unsatisfactory on wet soil and chiefly clay. The development of the all-purpose tractor has opened up a field of action for tractors in the United States (principally for hoed maize crops) which up to the present was exclusively reserved for draught animals.

With regard to agricultural implements, it is chiefly the principal of the harvester-thresher that has influenced considerably the more recent machines, that is, the principal of combining the process of harvesting with the manipulation of the product harvested. This system has been successfully applied to

regions where, on account of a too humid climate, the harvester-thresher could not be directly utilised. The development of the windrower has led here to a division of the method of mowing combined with threshing as the harvest is mown in windrows thus allowing the cereals to dry. After one or two days the cereal which is lying in windrows on the long stubble is collected with a pick-up-thresher and threshed immediately. Starting with cereal cultivation this principal of harvesting has also been applied to the construction of new machines for harvesting maize and other machines.

With their innate technical talent, the Americans of the United States have been the forerunners in the construction of many agricultural machines which has resulted in the development of an industry for agricultural machinery that far surpasses that of other countries. Agricultural machines in the United States have become of the greatest importance, not only in their country of origin, but also in many other countries as will be seen from the figures in Tables V and VI.

TABLE V. -- *Production and exports of tractors and machines for cereal cultivation in the United States.*

Year	Wheel tractors	Tracklaying tractors	Seed drills	Binders and harvesters	Harvester-threshers	Threshers
<i>Production.</i>						
1928 . . . . .	152 266	19 203	150 998	189 034	25 392	17 840
1929 . . . . .	195 980	27 101	86 115	191 429	30 957	13 558
1930 . . . . .	176 075	20 222	121 252	163 767	21 409	8 494
1931 . . . . .	61 940	7 089	63 529	58 668	5 907	3 788
<i>Exports.</i>						
1928 . . . . .	53 993	3 872	15 891	36 696	7 317	6 046
1929 . . . . .	54 353	6 450	24 424	34 737	10 887	2 806
1930 . . . . .	44 774	5 366	16 355	23 848	6 573	1 414
1931 . . . . .	27 079	1 750	1 703	6 081	2 608	214
1932 . . . . .	1 629	889	553	2 426	382	123
1933 . . . . .	2 403	1 198	988	2 203	405	134
1934 . . . . .	5 328	2 416	2 213	4 084	500	182

Table V only shows the production of agricultural machines up to 1931, inclusively, as statistics on production of agricultural machinery have not been published after that year. This must be accounted for by the disastrous contraction in the trade in agricultural machines as shown by the export figures for the years 1932-1934. In 1934 a rise in exports may be noticed, but, owing to the depreciation of the dollar, the value of this rise was felt to a limited extent. The total production and exports, in millions of gold francs, of agricultural machines in the United States will be seen in Table VI, in which is also given, for purpose of comparison, the export figures for five of the more important agricultural machinery exporting countries in the world.

TABLE VI. — *Production and total exports of agricultural machines in the United States compared to the exports of agricultural machines of certain other countries (in millions of gold francs).*

Years	Production	Exports					
	United States	United States	Germany	Canada	Great Britain	Sweden	France
1928 . . . . .	2 717	605	93	75	46	59	21
1929 . . . . .	3 144	730	120	103	49	46	36
1930 . . . . .	2 628	600	95	54	57	39	29
1931 . . . . .	1 111	207	59	15	32	28	17
1932 . . . . .	...	55	24	7	22	14	10
1933 . . . . .	...	51	28	6	26	*) 14	9
1934 . . . . .	...	67	27	10	25	*) 16	8
Average 1928-34 . . . . .	...	344	61	39	37	31	19

(\*) Estimated figure

This Table shows the importance of the position occupied by the United States in respect of exports of agricultural machinery in comparison with all the other countries. While the average annual exportation from the United States in the years 1928-1932 amounted to 344 million gold francs, the average exportation from the other five countries as a whole was, during the same period, only about 190 million gold francs.

After the United States, Germany is the next greatest agricultural machinery exporting country, but she only exported, from 1928 to 1934, an average of one fifth of the value represented by exports from the United States.

The year 1934 shows an improvement in the number of agricultural machines exported from all the countries given in Table VI, with the exception of France, but the results of this increase was less felt in the United States, Canada and Great Britain owing to the depreciation in their currency. A slight diminution can even be remarked in the value of exports from Great Britain compared to 1933, while in reality exports had increased. The same phenomenon is observed in Germany, but in this case, is due to a reduction in the price of machines exported and not to a depreciation in currency.

Canada. — Conditions for the use of machinery are very similar to those in the United States, except that the periods of vegetation are generally shorter, the winters harder and longer. For these reasons the work of cultivation and harvesting must be carried out in a very short space of time which sometimes is only possible with the use of machines. A factor which has had a very favourable influence on the mechanisation of agriculture is the difficulty of obtaining labour and the high wages that have to be paid. The machine has increased the possibilities of farm work and resulted in an extension in the total area cultivated

and also in the average size of the farms. In 1909-1913, the area cultivated in wheat in Canada was about 4 million hectares with a production of 54 million quintals. In 1921 the corresponding figures were 9.4 million hectares and 81.9 million quintals; in 1930 they were 10 million hectares and 114.4 million quintals; in 1934 they were 9.7 million hectares and 75 million quintals. Here too may be seen an increase up to the year 1930, followed by a decrease due to the crisis. The changes which have taken place in the size of farms show an increase of 13.1 %, in 1931, in farms between 80 and 120 hectares compared with the year 1921, also an increase of 13.8 % in farms of more the 120 hectares, while, for farms of 40 to 80 hectares and below 20 hectares the changes are not so noticeable. The average size of farms in 1931 was 90.8 hectares, while in 1921 it was 80.1 hectares, in 1911 it was 64.6 hectares, in 1901 it was 50.2 hectares and in the preceding three decades it was 39.5 hectares. The typical farms cultivated with horses and chiefly engaged in grain growing have an average size of a little more than 110 hectares while the typical farms cultivated with tractors generally exceed 250 hectares. While the number of horses fell from 3.46 million in 1921 to 3.14 million in 1931, the number of tractors increased, during the same period, from 47,455 to 105,269.

Under normal conditions, in Canada, work carried out with the tractor costs less than with horses when the work in question is heavy; ploughing for example. In lighter work the difference in costs is less, while the work of the binder is carried out more cheaply with horses. In Canada, the principle advantage of the tractor lies in the possibility of carrying out the work more rapidly and, therefore, larger areas of land can be farmed with the same amount of labour.

Here too, however, the fall in the price of wheat has had an adverse effect on the use of the tractor. Animal traction became less costly (from 1921 to 1931 the cost fell by about 74 %) and, in addition, forage for animals became more abundant and less expensive than in the United States so that, during the last few years, an increase in the use of teams may be observed. Recent tendencies, however, allow the conclusion to be drawn that, as in the United States, there has been a revival in the use of tractors in Canada.

In Canada, cereals are preferably harvested with the binder. In times past they were threshed generally with large threshers belonging to contractors who went one farm to another. This method had many disadvantages for the farmer who now generally threshes himself with smaller steel threshers. Owing to the rapidity with which the winter follows after the harvest, the harvester-thresher has only been introduced into a few districts, as while waiting for the harvest to become perfectly ripe, the fields may be covered with snow and the harvest lost. The method of using windrowers has been found more satisfactory as the cereals are cut earlier, during the normal harvest season, and are afterwards threshed by the pick-up-threshers.

**Argentina.** — This country, which has a climate and farming conditions particularly favourable to the use of harvester-threshers, imported many of these machines from the United States up to the year 1930. In 1929, about 30 % of the grain growing area was harvested with harvester-threshers. Since 1931, however, the imports of harvester-threshers and tractors have decreased



rapidly. In Argentina, conditions for the use of motor machines and above all tractors, are less favourable owing to the possibility of keeping horses at a very low cost. As long as the price of wheat has been maintained at a certain level, tractors have been used for many types of work owing to their greater utility, but, during the last few years, even the owners of tractors have returned to the use of horses as they have been unable to cover the working costs of tractors.

The three most important types of harvesting machines in Argentina are: threshers, headers with threshers and harvester-threshers. The complaints often heard of the defective quality of wheat harvested with harvester-threshers are largely due to the use of machines too early in the season and when this practice is abandoned no further complaints are heard. Under normal meteorological conditions, the harvester-thresher reduces costs incurred in harvesting. Comparisons made between the three methods of harvesting have shown that the losses are on an average about 14 % using binders with threshers, 16 % using headers with threshers and 10 % using harvester-threshers.

Australia. — Wheat growing, with sheep breeding, is the most important branch of agriculture in Australia. At an early date the construction of machinery had developed independently and had produced results which have often served as models for other countries. The necessity for tilling fields which often still contain roots and stones, soon led to the invention of the stump jump plough in which the body of the plough is fixed to the lever arms. When the plough strikes an obstacle, it is lifted over the obstruction in such a way that nothing is broken.

Not only single share and multiple share ploughs, but also other machines used in Australia for tilling the soil are now provided with this device for avoiding obstacles and it is even retained when the fields have for some time been completely cleared and large stones removed. The Australian farmer attaches much importance to the possession of good seed drills. At present, seed drills combined with fertiliser-distributors are almost exclusively used, the later being furnished with spring pressure teeth of Australian construction arranged in rows in front of the line of fertiliser discharge. In the construction of harvesting machines Australia has also followed her own route and has arrived independently, and even before America, at the construction of headers and strippers and harvester-threshers. The Australian harvester-thresher, in its most improved form, differs from the American in essentials. It has a front type cutting bar, is equipped with a motor engine and a single man is sufficient to work it. A tractor to draw it is, therefore, unnecessary, this being an advantage under working conditions in Australia, as the tractor is relatively little used. The use of horses costs extremely little owing to the extensive grazing. The total number of tractors in 1932 was estimated at 27 000, the majority being used in large farms.

## II. — ASPECTS OF AGRICULTURAL MECHANISATION IN EUROPE.

The relations between mechanisation and wheat grain growing in the United States, Canada, Argentina and Australia have been mentioned in passing and it has been noticed that in these countries there is an extensive use of technical

methods which is most remarkable in the United States in the combined use of tractors and harvester-threshers.

Mechanisation has not been hindered by conditions of land tenure which might have had a restricting influence and has been able to develop freely in countries overseas, allowing them to increase their production to an extent which exceeded, within a relatively short space of time, not only their own requirements, but also the demand for exports to European countries previously partly supplied by Russia. During the last few years the import requirements of European countries (excluding Russia in Europe) has been about 155 million quintals of wheat grain per annum and the corresponding export capacity of the four principle exporting countries mentioned above has been about 185 quintals of grain; the surplus export of producing countries and the requirements of various importing countries have been, during the last few years, on an average, about 210 million quintals of wheat per annum, of which 88 % has been supplied by these four countries alone.

The tendency shown by the different European countries to render themselves as far as possible independent of importation, also the reappearance of Russia on the world wheat market, this country having exported to a greater extent for the first time in 1930, resulted in a greater fall than ever in prices, due to an accumulation of stocks of wheat in the exporting countries. The extremely low price level on the world wheat market, which has subsequently been retained, is only explained in relation to the diminution in costs of production in overseas countries, made possible by the use of technical means of production.

European grain production (with the exception of Russia in Europe) was, during the years 1925-1929, on an average, about 368 million quintals; it gradually rose to 475 million quintals in 1933 and afterwards fell, in 1934, to 411 million quintals, following the poor harvests. The tendency to increase production, however, and to reduce imports has made itself clearly felt. The enormous importance of European wheat production may also be seen from these figures, chiefly if it is remembered that it constitutes the basis of existence for about 25 million small peasant farmers. The average size of these farms varies round about 5 hectares. The proportion of medium and large farms is below 5 % according to the number of families and below 20 % relative to the area.

This branch of European agriculture, which is chiefly in the hands of small peasant farmers, has been placed in a difficult economic situation, from which it has not yet been able to find a way out, by the new types of agricultural machines overseas, and principally by tractors and harvester-threshers.

The reasons why the small European farms have not been able to profit by the advantages of overseas mechanisation may chiefly be found in the restricted size of the farms and, even more, in the unfortunate distribution of fields which is unhappily too common. To this must be added the density of the population, resulting in a surplus rather than a deficit of labour, and, finally, the difficulties arising from climatic conditions and the formation of the soil.

The efforts of European States to mechanise their agriculture, therefore, were directed towards other ends than those of the overseas States; they did not so

much attempt to manipulate large quantities with the minimum labour, as to increase the yield from a qualitative standpoint and at the same time to facilitate the individual work of the farmer, and consequently to lower the cost of production, but without eliminating human labour more than was absolutely necessary. This attitude led to the adaption of the principals of large scale mechanised farming to small farms, but with the difference that in the small farms labour is cheaper and stringent economies in labour are not necessary. Everywhere, in agriculture and in the agricultural machine industry in Europe, trials are made in constructing machines intended for use on small farms, but, at the same time, having the advantages of the large machines. Unfortunately an economic and technical limit is often put to the reduction in size of these machines, so that, now-a-days, trials are made in co-operative utilisation of machines and even in grouping farms belonging to various owners and too small for each of them to be equipped with their own machinery.

It must be remembered that all these efforts only represent, up to the present, under the protection of customs barriers and restrictions on imports, attempts to combine the advantages of mechanisation with the types of farming that exist at the present time. It is not possible to say whether they would, in the long run, be able to continue without this protection.

Germany. — The adaption of machinery, as mentioned above, is greatly studied in Germany, a country in which a very extensive use is made of machines in agriculture. A survey of the development in the use of machines in cereal growing (in this country rye is grown on an area double that which is cultivated with wheat). is given in Table VII from which will be seen the great increase in seed drills, mowers, harvesters and motor threshers. The increase in these latter machines explains the large increase in electric motors from 745 553 in 1925 to 1 169 841 in 1931. In spite of the relatively considerable increase in the number of tractors from 11 897 in 1925 to 24 118 in 1933, it must, however, be said that they are not yet extensively used in agriculture in Germany.

TABLE VII. — *Use of tractors and machines for cereal growing in Germany.*

Years	Tractors	Seed Drills	Mowers and harvesters	Motor Threshers	Horse driven threshers
1907 . . . . .		25 079	307 454	16 750	716 022
1925 . . . . .	11 897	509 176	1 023 381	577 057	477 494
1933 . . . . .	24 118	614 200	1 308 013	759 261	240 510

The harvester-thresher is only used in isolated cases in Germany (there are only about 15 in all) and then rather for trials than for practical purposes. The climate and conditions of ownership are not well adapted to the use of harvester-threshers of the American type and, in addition, it is not possible with these ma-

chines to harvest the straw which in Germany, no less than in other European countries, cannot be lost. Trials have been made in the construction of new types of machines, smaller and adapted to European requirements, among which a machine recently invented by M. Brenner merits special attention. It consists of a front type cutting bar built round a tractor and is worked by a direct power take-off. The cutting bar cuts the ears and stubble, then a special device turns the stubble upside-down with the ears below and carries it along a vertical beater which threshes the ears without damaging the straw. The advantages of this process are: a higher percentage of grain is harvested without using a shaker; the effort is less and the straw is retained; the loss of time however in mounting the machine round the tractor is a disadvantage. Cereals harvested with the harvester-thresher in central Europe generally have to be completely dried by artificial means therefore the economic advantages obtained from using this machine are diminished.

During the last few years, great efforts have been made, not only in Germany, but also principally in Switzerland, to construct small tractors which are perfect from the technical and economic points of view and intended for use in sized farms medium and small peasant farms. But up to the present none of the machines in existence have fulfilled the necessary requirements and it seems doubtful whether, in the near future, a satisfactory solution will be found on the lines adopted up to present. As a source of energy for small farms, the electric motor has far greater chances of success where prices for electric current are reasonable.

In respect of ordinary tractors, there is an active production in Germany of machines with Diesel engines; at the present time the Diesel tractor is almost exclusively the only tractor made and a high degree of perfection has been arrived at in its construction. There is a decided tendency to develop motors which can be run on national fuels. In this field of activity mention must be made of the researches of Professor KUHNE at Munich which have opened up new prospects for the possible use of gas fuel produced from wood.

In the medium sized and large farms, the tractor is chiefly used in periods of pressure of work when it gives excellent results. In order that smaller farms might profit from the advantages of the tractor a co-operative system of utilisation of machines is often adopted in fields belonging to different owners and united, for this purpose, in a single cultivable area. The principle and almost insurmountable obstacle is found in the difficulty of obtaining the free consent of various peasants to practice joint cultivation and harvesting under single direction. At Hausern, a trial on this lines was made during several years under the direction of Professor MUNZINGER with promising results. After the test was finished the joint use of machines and joint cultivation of fields was continued by the peasants under the form of a co-operative society for the use of machinery.

The agricultural machine industry in Germany has reached a high level and after the United States, she is the greatest exporting country of agricultural machinery although the effects of the crisis are being seriously felt. Table VIII gives the figures for exports of tractors and machines for cereal cultivation.

TABLE VIII. — *Exports from Germany of tractors and machines for cereal cultivation.*

Years	Tractors	Seed Drills	Harvesters	Threshers
1928 . . . . .	2 252	...	26 868	2 750
1929 . . . . .	2 730	14 613	37 131	3 705
1930 . . . . .	1 450	9 270	34 798	3 432
1931 . . . . .	1 239	3 314	29 602	1 896
1932 . . . . .	1 490	1 556	11 978	1 118
1933 . . . . .	950	2 799	8 964	1 562
1934 . . . . .	812	2 910	9 612	1 689

France. — Conditions here are similar to those in Germany with the difference that the milder climate allows a more extensive mechanisation harvesting in certain regions. Trials for adapting the harvester-thresher to European conditions were started in France at an early date and at the present time about 100 harvester-threshers are in use which is probably the greatest number in any European country with the exception of U. S. S. R. and Spain. In the small peasant farms there is a great need for machines which economise in and facilitate labour. These machines are to a large extent constructed, improved on and supplied by the national industry. As in other countries, so in France, the machine combats the tendency towards a rural exodus among members of peasant families.

Unfortunately statistics are not available on the use of agricultural machinery in France. The number of tractors is estimated at 20 000. In addition to considerable imports of agricultural machines national production has greatly developed during the last ten years, and France is now the sixth exporting country among the most important agricultural machinery producing countries in the world, as will be seen from Table VI.

Great Britain. — This country has the most ancient traditions in respect of agricultural machinery and, after Germany, is the third most important country exporting agricultural machines. According to an approximate estimation it may be concluded that a little more than half of British production of agricultural implements remains in the country and a little less than half is exported (see Table VI).

The reverse is probably the case for motor machines: about 25 of the production remain in the country and about 35 are exported. The use of agricultural machines in Great Britain should be considered in relation to the area cultivated. Table IX gives the figures for the use of motor machines in England, Scotland and Wales.

Mechanisation is particularly advanced in respect of wheat growing under the influence of the Institute for Research in Agricultural Engineering, University of Oxford. Detailed trials have been made, during the last few years, in order to study the possibilities of using harvester-threshers under working con-

ditions in Great Britain. These tests have resulted in the introduction of these machines in principal, but combined with special processes for drying cereals after harvesting.

TABLE IX. — *Number of motor machines employed in England, Scotland and Wales.*

Years	Steam engines	Gas engines and heavy oil engines	Tractors	Electric motors	Windmills and water engines	Other motor machines
1908 . . . . .	10 726	9 770	—	171	—	719
1913 . . . . .	9 087	21 440	—	314	8 769	28
1925 . . . . .	4 132	69 095	18 372	887	7 875	21
1931 . . . . .	2 453	81 309	21 106	2 896	7 059	76

Italy. — In account of the work of land reclamation, there is a great demand in this country for agricultural machines, and chiefly motor machines. In Table I will be seen the extensive use that is made of tractors and locomotive engines. With 30 210 tractors Italy employs twice as many tractors as, for example, Germany in relation to area cultivated, following after the United States, Canada and Russia. Table X shows the development in the use of tractors and motors in Italy from 1924 to 1934.

TABLE X. — *Development in the use of tractors and motors in Italy from 1924 to 1934 and annual consumption of fuel for agricultural purpose*

Year	Number of tractors	National tractors	Imported tractors	Number of internal combustion engines	Annual consumption of fuel for agriculture in thousands of qts
1924 . . . . .	*) 5 840	...	...	..	175
1925 . . . . .	*) 7 250	...	...	...	213
1926 . . . . .	*) 12 475	...	..	...	423
1927 . . . . .	*) 16 178	2 403	13 775	...	508
1928 . . . . .	18 184	3 155	15 029	3 111	635
1929 . . . . .	21 065	4 320	16 745	4 811	770
1930 . . . . .	24 044	4 562	19 482	6 587	805
1931 . . . . .	26 542	5 138	21 404	8 860	785
1932 . . . . .	28 162	5 626	22 536	11 101	778
1933 . . . . .	29 611	6 373	23 258	14 669	843
1934 . . . . .	30 210	6 598	23 612	16 003	983

(1) Including internal combustion engines.

The continuously ascending movement in the use of agricultural tractors, as shown by Table X, is explained by the very favourable conditions under which tractors work in Italy. Realising the importance of the use of tractors for encour-

aging and successfully carrying out the "wheat campaign", the Government has exempted petroleum for agricultural use from duties since 1923. But a decisive diminution in prices of petroleum for agricultural purposes could only be obtained by grouping in a single unit all the users of tractors and internal combustion engines which has been carried out by establishing the "Sezione Utenti Motori Agricoli" in the "Confederazione Nazionale Fascista degli Agricoltori". It is due to the energetic action of this Association that agriculture in Italy has been able to obtain petroleum at such low prices, and now naphtha as well, which have been established for the whole of the country through delivery contracts made directly between the Sezione Utenti Motori Agricoli and the great petroleum supply companies.

Compared with the use of motor machines, the use of harvesting machines in Italy is less extensive. Tests made with harvester-threshers in the province of Foggia resulted in economies of about 50 % in comparison with the ordinary methods of using binders and threshers, although Italian farmers hesitate before using these machines for fear of increasing unemployment and want among the rural population. In fact, the most highly mechanised region in Italy recently decided not to use even harvesting machinery for the harvest of 1935 in order to not decrease the possibilities of work for farm labourers. It has however, been found that similar measures cannot be put into practice. In Hungary, for example, such measures were tried, but had to be abandoned. The problem of unemployment cannot be solved by restricting the use of machines, though this has often been proposed and attempted, because such measures only result in an increase in costs of production and ultimately lead to deprivation for the rural population. A relaxation in the prohibitions which at present are restricting trade and all activity and enterprise would certainly bring about an improvement in this respect.

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In the preceding pages a study has been made of certain European countries and their tendencies towards mechanisation which differ from those in countries overseas. Many countries of importance outside Europe have intentionally been omitted, for example, Algeria and Tunis with their highly developed mechanisation of cereal growing due to the use of tractors and harvester-threshers, in spite of the low cost of labour, which aggravates the question of unemployment. In Europe, also, Spain has not been mentioned nor the Scandinavian countries where machines are extensively used, nor the Danubian States, the reason being that, in respect of mechanisation, we have tried to make clear the "offensive" position taken by cereal exporting countries with extensive cultivation, in comparison with the "defensive" position taken by the older wheat-growing countries. In their defensive policy, these countries have so far primarily limited themselves to isolation as far as it has been possible. No efficacious means have yet been found for lowering the costs of production which, in retaining the methods of farming followed up to the present, would allow them to compete with overseas methods without the help of particular systems of protection.

U. S. S. R. — It now only remains to study a country where the use of machines has taken special forms on account of particular conditions existing there. In U. S. S. R. mechanisation has been introduced and carried out with increasing rapidity, and has been both in conception and practice in the nature of a systematic planning rather than a spontaneous development.

The formation of the soil, the climate and the presence of fuels in the country provide ideal bases for the use of machines in U. S. S. R. On the other hand, the human factor presents great difficulties as up to the time of the introduction of the five-year plan this human element had not been sufficiently trained in the management of machines and, in the short space of time that has elapsed, has hardly been able to have adequate experience and knowledge of machines and their nature and requirements.

In the past a great part of agricultural work was carried out by small peasants owners who cultivated and harvested their fields with simple methods. A part of the harvest was deposited in the autumn in co-operative ware-houses for supplying the requirements of the population, another part was stored by the peasants themselves and taken away to be sold in winter when transport was facilitated by the snow that covered the country.

At the present time the State requires the cereals directly after harvesting. After forced delivery had resulted in the peasants' growing only the cereals necessary for their own needs, collectivism in agriculture was introduced which gave the peasants an economic conception of the State. The machine has played a decisive part in collectivism.

In Russia today farming consists chiefly of collective farms, (« kolkhos »), the large State farms (« sovkhos ») are in the minority. Machines are extensively used on both types of farms. The collective farms consist of peasant farms amalgamated in a single unit and where, not only is the land united in the interests of a uniform cultivation, but also the peasants are obliged to live their lives in common. The medium sized and small collective farms generally do not possess machines of their own; these are provided by tractor stations organised by the State which carry out the mechanical work and receive a part of the harvest in payment. The large State farms possess their own machines. The enormous size of these farms at first gave rise to disadvantages owing to the impossibility of having a clear view of them as a whole, of their requirements and of the work carried out on them, so much so that a great number of them have now been reduced in size.

The great shortage of machines was felt on every side, chiefly during the first years of economic transformation in Russia and this was further increased by the incapacity of those who used machines to maintain them in good order. Too much has been and is expected of machines with the result that after a short period of use they are no longer serviceable. Large numbers of machines were introduced during the first years of the five-year plan until, in 1932, national production, stimulated by foreign technicians, was able to provide the necessary machines. Often, after one year, more than one costly harvester-thresher or other machine is not longer fit for work owing to over employment



and also the 6 day week during which the machine passed from one worker to another without any responsibility being taken by anyone who was in charge of the machine. In addition, owing to the harvests in the southern, northern and eastern regions succeeding each other, it was the custom to transport the machines from one region to another, and it has happened that machines have been sent from one place to another without having been repaired and without forwarding the necessary spare parts.

As the area to be cultivated and the dates of cultivation have been established by Moscow it is frequently difficult to carry out the work required at the proper time. The want of machines and labour resulted in the work being carried out only superficially in order to finish the tasks assigned. Weeds, therefore, increased in an alarming manner and soon a more thorough method of tilling had to be returned to. The large quantity of weeds which appeared in the fields of the State farms was also probably due to sowing having been delayed too late in the year and also to the fact that cereal cultivation was made compulsory to the exclusion of other crops and that the harvester-thresher was used which left the seeds of weeds on the fields.

These first mistakes having been recognised, the machines are now in charge of special groups of workers called « brigades », who are more highly paid and take the responsibility for their machines. As, however, payment is not uniform in all places, it has not been possible to prevent the « brigadiers » (workers) from going to the places where the chances of profit are greater.

Not only are the workers changed, but also often the managers of farms though for other reasons, namely, that they are made responsible for the success or failure of the undertaking of which they are in charge without however, being able to act on their own initiative.

A great number of these difficulties that have been enumerated must be attributed to the want of machines and the excess of organisation leading to confusion as well as to the insufficient training given to peasants and workers, as mentioned above. To this must be added the difficulties arising in the past from the obligation to deliver immediately a large proportion of the harvest. A part of the motor machines is unavailable at the period of greatest pressure of work owing to the necessity to transport cereals to grain silos long distances away. The silos are generally unprepared to receive such large quantities which arrive at the same time and frequently a part of the harvest has to be stacked up in the open air beside the silos. Losses caused by rain and theft, etc., may be estimated at at least 15 to 20 % of the harvest.

A considerable increase in national production of agricultural machinery, a greater understanding of how to use and look after machines, decentralisation of the management of State farms and a great autonomy in collective farms could, in the future, contribute towards surmounting some of the difficulties described above. The successes obtained cannot be ignored, but it is difficult to say whether they are in just relation with the sacrifices and efforts that have been made.

## CONCLUSION.

It will be seen from what has been said that mechanisation has had an enormous influence on production and has reduced the costs in a measure that cannot be compared with antiquated methods. While increasing competition, mechanisation in cereal growing countries overseas has also encouraged the development of new methods for reducing the costs of production in countries where wheat cultivation is traditional. The majority of these countries, however, have reacted to the lowering of prices due to methods of harvesting overseas by establishing quotas and customs duties.

It may be asked whether all these phenomena, in offensive and defensive countries, will produce new economic forms and new social groupings. It is the task of those in a position of administration to grasp the tendencies in development and direct them towards forms that would be of service to mankind.

H. J. HOFFEN.

**MISCELLANEOUS INFORMATION**

THE VI INTERNATIONAL BOTANICAL CONGRESS, AMSTERDAM, 1935. — The VI International Botanical Congress, which assembles every 5 years and is of increasing importance, took place this year from 2 to 7 September. The number of members exceeded 1000 and 54 countries were represented. The preceding Congresses met in Paris in 1900, in Vienna in 1905, in Brussels in 1910, at Ithaca, United States, in 1925 (owing to the world war and post war difficulties it had not been possible to continue the five-yearly meetings), and in Cambridge in 1930.

The links which unite agriculture and botany are innumerable. Investigations on plant life, even if carried out on the lines of pure investigation of the phenomena of nature, may often lead, in an unexpected manner, to practical results of the greatest importance. For instance: the first observers of bacteria who, actuated solely by the desire to discover infinitely small organisms and to study their life, founded the basis of bacteriology which is, *inter alia*, one of the foundations of soil science. Another example is that of Cytology. Twenty years ago the study of chromosomes and their rôle in heredity only appeared to be of purely theoretical interest. Today, the great importance of the determination of the number of chromosomes is recognised and the part played by the diploid and polyploid races in the breeding of cultivated plants. It is therefore necessary for all those who wish to improve agriculture to keep in touch with the progress of botany in all its branches. It is also important for botanists to sometimes leave their laboratory and profit by the experience of farmers and the knowledge of the processes of cultivation which are often founded on long and careful observation in nature.

Having worked in both fields of activity, it has often appeared to us that the contact between pure science and agriculture is not always sufficiently intimate, that scientists confine themselves too closely to pure science and farmers disregard scientists unless their advice produces immediate results visible in the following harvest.

The Congress at Amsterdam has shown us that this is not the case. There is, in fact, a close contact between the science of botany and farming. The proof of this

is found in the establishment of a special Agronomical Section in this Congress, which was very active and was attended by a very large audience.

This does not mean that preceeding Congresses have neglected the applications of botany. Having attended the Congress at Cambridge, we remember with appreciation the numerous conferences and discussions concerning practical problems and the excursions to the great research centres of applied botany such as, Rothamsted, East-Malling and John Inns Institute. At Ithaca a special Agronomical Section was established as at Amsterdam.

The environment in the Netherlands, however, this time created an atmosphere particularly favourable to contacts between science and farming as in the Netherlands and its colonies agriculture and horticulture have reached a state of perfection universally recognised and botany is represented by such eminent names as DE VRIES, BEYERINK, TREUB and WENT all of which have never lost contact with the practical side of life and whose pupils now contribute, at the Congresses, to both science and farming at the same time

It is with the greatest regret that the news was received of the recent death of two of the most eminent representatives of Botany: Hugh DE VRIES, founder of the theory of mutation who died at the age of 87 years having worked up to the last days of his life; and Professor F A F C WENT who should have been President of this Congress which he had begun to prepare and organise. His place was taken by Professor SCHOUTE of Groningue who, owing to his perfect knowledge of the three official languages, was able to admirably conduct the plenary sessions. The Secretariat was entrusted to Professor SIRKS, who is well known as an organiser of international Congresses.

The organisation of the Congress was perfect in the highest degree in respect of functioning of bureaux, choice of halls for the sessions and the arrangement of excursions. The large and handsome halls of the Colonial Institute were able to hold a large number of members and the various University Institutes, in the immediate vicinity, placed their halls at the disposal of the sections.

The organisation of scientific work was no less admirable. Ten sections were established: Agronomy, Cytology, Genetics, Geobotany, Morphology and Anatomy, Mycology and Bacteriology, Phytopathology, Paleobotany, Plant Physiology, Systematics and Nomenclature. The fact that the majority of members were interested in several branches of science was also taken into account and by the combined session of several sections it was possible to satisfy the frequently expressed desire to establish contact between the various and often divergent branches of science.

Among the conferences held in plenary session, only the first was devoted to agriculture. Professor STACKMAN of St Paul (Minnesota) treated the vast subject of the specialisation and variation of fungus parasites of plants and threw light on various aspects of the problem which, especially in respect of rusts, have formed the subject of numerous studies made in the Institute directed by the speaker.

The Agronomical Section selected subjects, the various aspects of which were first made clear in the conferences of several experts and afterwards served as the basis for discussion. The excellent choice of subjects was made by Professor O DE VRIES of Groningue, who also was responsible for organising the Section. Sir JOHN RUSSEL was President and in that capacity always summed up the discussions in a masterly manner giving a synthesis of the opinions expounded and the results of the discussions. Mention must also be made of the vice-presidents, all well known in the agricultural world. Professor E. A. MITSCHERLICH of Königsburg; Professor Th. ROKMER of Halle; Professor STAPLEDON of Aberystwyth (Wales); Professor VOLKART of Zurich; Professor WAKSMAN of New Jersey

The subjects were: (1) Interactions between roots and soils; interactions between plants — (2) Weed flora as an indicator of soil conditions in agriculture. — (3) Grassland associations — (4) Virus diseases (discussed in common with the Section of Plant Pathology) — (5) Genetics and breeding of immune varieties — (6) Inbreeding and incompatibility (these two subjects were discussed in common with the Genetical Section) — (7) Importance of microbiological investigations in the study of agricultural problems (discussed in common with the Mycological and Bacteriological Sections) — (8) Influence of the cycle of development in plants (discussed in common with the Physiological Section).

Among the resolutions approved by the final Assembly, the following are of interest also for the agricultural world:

one proposed by the Cytological and Genetical Section with a view to a greater international uniformity in cytological and genetical terminology,

one proposed by the Geobotanical Section in which attention is drawn to the increasing destruction of primitive vegetation and the injurious practice of forest and steppe fires;

one proposed by the Phytopathological Section recommending that the work of the Commission for studying the nomenclature of virus diseases should be continued and that the term "physiological form" should be substituted for "physiological race".

one proposed by the Phytopathological Section insisting on the necessity for international co-operation in the control of diseases and pests of cultivated plants.

W. BALIV.

WHEAT SELECTION AT THE RESEARCH STATION FOR IMPROVING CROP PLANTS IN SALONIKA. — The direction of the work of wheat selection, which has already been carried out for the last 8 or 9 years at this Station, is in the charge of M. Jean PAPADAKIS.

The beginning of this work consisted of cultivating, in the form of trials, certain varieties of wheat of foreign origin, based on certain data (precocity, resistance to rust, drought, etc.). The Station thus introduced two varieties of *Camberra* (Australian variety) and *Mentana* (Italian variety) which gave a yield superior to that of native varieties; this increase in yield exceeded 300 kg. per hectare. These yields were obtained in the whole of the north-east of Greece and even in regions where the land is not entirely suitable for the cultivation of wheat. It is expected that, in a few years, this cultivation may be extended to 250 000 hectares which will give an increase in national wheat production of more than 75 000 tons.

In addition, it is hoped that, in the low lands of Macedonia, the cultivation of barley may be replaced by that of *Mentana* wheat which is resistant to attacks of rust and the alkaline reaction of the soil in these regions. It will thus be possible to increase the land sown with corn by 37 500 hectares and provide a new production of 75 000 tons, taking the yield at 2 000 kg. per hectare which is below the possible figure. At present the increase in national production in Greece has reached a total of 95 000 tons.

The varieties *Mentana* and *Camberra*, however, have the disadvantage of not succeeding in red clay soils which has led the director of the Station to breed other varieties, namely, *Mycenes*, *Eretris*, *Argos*, *Xylocastron*, etc. These varieties are beginning to be extensively grown in the various centres of wheat cultivation, and give a yield of 300 kg. per hectare, in red clay soils, more than that given by the native varieties. The Station has been able to supply wheat growers with more than 500 000 kg. of selected seed for the season 1934-1935.

Other investigations are carried out at the Station with a view to breeding new varieties by crossings between the varieties of wheat showing the ecological characters of *Mentana* and resistant to blast, also other varieties with the ecological characters of wheats from red clay soils and very resistant to drought. The results obtained are very encouraging.

In addition, the Station carries out research work of a scientific nature. The Director is the author of an excellent work on native wheats. Greece has been studied from the ecological point of view and methods have been found for estimating resistance to drought and avidity for acid of native varieties of wheat. The Station has also studied the varieties of wheat in Greece from the standpoint of baking value.

THE IX GENERAL ASSEMBLY OF EUROPEAN BEET ROOT GROWERS, 1935. — This Assembly met at Bologna and Rome on 18 and 21 September, 1935. Following the discussions approval was given to the recommendations and resolutions shown below.

The IX General Assembly of European Beet Root Growers, meeting at Bologna and Rome on 18 and 21 September, 1935, studied the situation of beet root growing in the various European countries and examined the international situation. It was determined, with great satisfaction, that, taking the European countries as a whole, the opinions expressed by the Congress of the C. I. B. E. in 1929 have served as a basis for establishing all new legislation regulating production and sugar making in all the countries.

The Assembly drew attention to the fact that beet root growing in Europe is a necessity from the point of view of cultivation, and also from the social and economic standpoints. It is one of the bases of intensive cultivation and of agricultural progress and is also of vital importance with regard to the life of and wages paid to farm labourers in every country.

The protection, organisation and legislation in respect of beet root growing and sugar making should therefore be established with a view to the interests of cultivation and not speculative or industrial interests.

The Assembly draw attention to the fact that the stabilisation of sugar beet prices, at a reasonable level, can only be obtained by harmonising the needs of production with those of consumption and exportation in so far as these correspond to the normal requirements of the usual markets.

In confirming the preceding resolutions, the Assembly of European Beet Root Growers considers that a general rationalisation of sugar production should be sought for, if possible, by means of an International Sugar Conference for the purpose of

(1) regulating production at the level of consumption in countries where national requirements are already supplied,

(2) stabilising production in importing countries

(3) rational distribution, with a view to controlling the international market, of quotas and exporting markets between countries adhering to the CHADBOURNE Plan and where great sacrifices have resulted in a correction in prices, or at least an improvement in the international statistical situation.

The General Assembly of Beet Root Growers, considering, however, that such a Conference and such international regulations should be based on the needs of the peasant populations and not only on industrial combinations, desires that the Beet Root Growers Associations in the various countries and the C. I. B. E. should be associated in all negotiations.

For this reason, the Assembly gives authority to its Bureau to carry out the necessary work of organisation, and to the Honorary President M. DE HUMNICKI, assisted

by MM. ACHARD and DE VECCHI, authority to co-operate with the international organisations in order to organise the necessary collaboration.

The Assembly, considering that, in the present circumstances, the development of beet root growing is limited by the necessarily slow development of consumption, and considering that the great importance of the cultivation, recommends that, as far as is possible in each country, new methods of utilising sugar beet should be sought for, chiefly.

(1) by the maximum utilisation of sugar beet and its by-products (Stephen cossettes, molasses, etc) in the feeding of cattle and the limitation of foreign substitutes.

(2) by the production, when possible, of alcohol from beet root for use as fuel and by the establishment of agricultural beet root distilleries, the results obtained in numerous countries having shown the complete success of the general use of alcohol as fuel.

The Assembly also confirms the recommendations previously expressed on the control of production and sale of saccharine

The Assembly, before dissolution, expressed to the Government and organisations of beet root growers in Italy its sincere thanks for the cordial hospitality shown and for the magnificent example given by the corporate organisation in Italy to all European countries.

RESOLUTIONS ADOPTED BY THE XI INTERNATIONAL HORTICULTURAL CONGRESS — Rome, 16-21 September, 1935 (\*)

### First Section

#### *Subject 1 Fruit-growing*

The Section unanimously recognises -

- (1) that only highest class varieties should be planted in each country
- (2) that scientific experimental research work on the cultivation of fruit trees should be encouraged as it deserves in order to obtain results most favourable to production

In addition, it is desirable that co-ordination should be instituted between research stations in each country.†

The Section makes the following recommendations for the organisation of the next Congress.

In general, questions put before reporters should be clearly specified so that the conclusions reached may be of international value

The Section draws attention, for example, to the importance of the following questions —

- (1) study of stocks;
- (2) influence of ecological factors on the fertility of varieties;
- (3) the most practical forms in different regions in each country,
- (4) scientific research on the cultivation of fruit trees

(\*) From the text communicated by the Secretariat of the Congress.

*Subject 2: Horticulture.*

The results obtained in each country due to the new methods employed and the increase in areas cultivated; also to scientific research in view of practical application and particularly to the good appearance of products.

Means of improvement.

These should consist of: following the directions drawn up by the Congress and the scientific sections; the control of pests, etc. Study of statistics in order to avoid gluts on the market and to establish, in each country, a calendar of production to be subsequently studied from the international point of view.

Constant attention to the good appearance and quality of the product and increased facility for international marketing.

Second Section.

*Subject 3 Flower-growing.*

The Flower-growing Section considers that, as long as the present world wide economic difficulties of a general order persist, no radical changes can be expected chiefly in respect of the regulation of the international marketing of the products of floriculture.

*It considers* that it is necessary to establish a clear-cut difference between countries, taking their standing into account, which apply a strict, but reasonable protection against imports of floricultural products and those in which there is an almost complete prohibition to import

*It considers* that a more extensive application of customs duties or seasonal quotas might contribute towards an improvement in the situation, by allowing exporting countries to profit from marketing conditions without interference with production in the importing countries

*It considers* that the attention of all countries should be drawn to the fact that phytosanitary measures should not, in practice, take the form of a prohibition in disguise.

*It considers* that it is by the joint research and study by the parties interested in all countries that the necessary improvements may be made in the situation described above.

*The following recommendations are made to the Congress,*

That the work of the XI International Horticultural Congress should be continued by studying the method of forming between the countries and their specialised horticultural associations, here represented, an official Organisation for supervising the standardisation of floricultural products which would, from an international standpoint, study and deal with whenever the occasion arose, questions regarding marketing systems.

\* \* \*

The XI International Horticultural Congress recommends:—

(1) a closer collaboration between the Botanical Gardens of Universities and Horticulture in general.

(2) That the experiment Stations and horticultural schools should be better utilised; the first in solving the problems relating to practical horticulture, and the second for giving instruction in modern horticultural methods.

### Third Section.

#### *Subject 4. Nomenclature.*

The Horticultural Congress held in Rome should emphasise the importance and urgency of assisting breeders of new varieties by instituting, in some form or other, protection of new horticultural varieties.

The XI International Horticultural Congress, after having considered the general and national reports on the protection of new horticultural varieties unanimously recognises the pressing need for legislative action for the production of new varieties in agriculture and horticulture in the same way that inventions and discoveries in other branches of science, arts and industry are already legally protected by laws. Such protection has been applied for several years in the United States with beneficial and effective results.

This protection is necessary in all countries for the following reasons:

- (a) the professional and moral status of those who devote their time and efforts to the progress of agriculture and horticulture;
- (b) encouragement of work for the advancement of these two branches of human activity;
- (c) high moral standards in trade;
- (d) protection of the economic interests of inventors and dealers in new agricultural and horticultural varieties.
- (e) improvement in and popularising of such new varieties.

Protective legislation, in order to be effective should be applicable to international markets and, consequently, should, in each country, be based on uniform principles.

In consequence, the Congress suggests a commission for studying and defining these principles.

In also recommends that each government should do everything possible in order to obtain, within the shortest space of time, an effective protection of new agricultural and horticultural varieties based on uniform principles.

#### *Subject 5 Vocational training.*

The Section for vocational training, after examining the general report of M. EBERT (Germany), proposes a questionnaire to be submitted to the next Congress and:—

- (1) adopts the said questionnaire and proposes to complete it as follows:—
  - (a) organisation of horticultural instruction for boys and girls in each country at the same time distinguishing between independent and official instruction;
  - (b) specification of elementary and higher horticultural instruction.
- (2) considers that, as supplementary to horticultural instruction, it would be desirable to reach a general understanding between the different States for the exchange of students of horticulture in agreement with the vocational associations and at the same time to encourage exchanges between members of the profession.



Considering the importance, from all points of view, of horticultural instruction in the widest sense, and that in the majority of cases horticulture is and should be a family industry;

The Congress is of opinion that this instruction should be generously encouraged in all countries.

In particular, in order to assure better conditions of study, it recommends the application of the following measures and methods for both boys and girls;

(a) With regard to vocational training:--

(1) The choice of a teaching staff with a greater sense of responsibility in their mission and with the moral qualities, both professional and pedagogic, necessary to impart similar qualities and capacities to their pupils so that they may be successful in their future careers;

(2) The adoption of a curriculum appropriate to the age of the pupils and corresponding to the true requirements, present and future, of the region in which they will work, the improvement in the quality of theoretical studies, diminution in quantity and intensification of practical work;

(3) Rational distribution of studies and practical work

Rational distribution of tests and marks according to their relative importance, so as to avoid overworking and to meet vocational, moral, and family requirements;

(4) An ordinary family character both with regard to land and property so as to develop a rural and family sentiment in the future horticulturists

(5) An ordinary organisation and management of buildings and land intended for family and vocational instruction of pupils. Methodical arrangement of work Model demonstrations, followed by practical application in small groups, the teacher working with his pupils in the same way as the horticulturist works with his children at home.

A parallel intensification of instruction in house-keeping for girls, with practical application,

(6) A working programme known to masters and pupils Co-ordination of all initiatives and activities for carrying out the working programme. Periodical statements on problems solved. Improvement in the quality of theoretical curricula, reduction in quantity. Intensification of practical work,

(7) Development of the personal work of the masters, mistresses and pupils and their documentation in the light of the minimum of scientific direction and of indispensable instruction

(8) Maximum development in the sense of responsibility and devotion among the teaching staff and pupils. Rational distribution of the charges entrusted to pupils with a view to collaboration in carrying out the working programme and their mutual improvement, both from the point of view of character and vocational sentiment

#### *Subject 6: Fertilisation.*

Section III (Subject 6) recommends that, for the next Congress, national reporters shall receive the clearest possible directions for preparing their reports.

They may be requested to examine:--

(a) the work carried out in their own countries (research work carried out specialised institutes, public works);

(b) methods of cultivation (use of animal hormones, root fertilisers. etc.).

A communication might be presented on " the methods to be used for examining soils and the fertilisation of horticultural crops ".

#### Fourth Section.

##### *Subject 7: Horticulture in Tropical countries.*

##### (I) Section IV.

In view of the new departure taken by the XI Horticultural Congress in establishing a special section for Tropical Horticulture and also of the great utility of this innovation it is recommended:—

That all the International horticultural Congresses now provide for special sections for cultivation in tropical and sub-tropical regions and for studying the problems arising from this cultivation, such as diseases, the preparation, packing, preservation and industrialisation of products and especially for studying the economic aspects of these undertakings and the transport they entail.

##### (II) Section IV.

In view of the frequency of cases of under-nourishment among the natives who make up the greater part of the population in many tropical regions it is recommended:—

That the International Horticultural Congresses give special attention to the study of the composition of tropical vegetables and fruits from the standpoint of human alimentation, and also of the European vegetables suitable for cultivation in hot countries.

##### (III) Section IV.

In view of the world wide importance of Horticulture in tropical and sub-tropical regions;

It is recommended:—

That the International Horticultural Congresses provide for and study, together with the International Federation of Agronomical Technicians, the organisation of special instruction in horticultural technique, nursery-gardening and fruit-growing applicable to hot countries and international markets with a view to a more satisfactory utilisation of the services of specialised technicians.

##### (IV) Section IV.

In view of the insufficiency of the knowledge of fruit trees and vegetables in tropical countries it is recommended.—

That an international catalogue should be established, giving information on the species and varieties cultivated or still in the wild state which may be adapted to horticultural cultivation

#### Fifth Section.

##### *Subject 8: Entomology.*

The Section strongly recommends that the biological control of plant pests should be encouraged in all possible ways as the control carried out solely by means of toxins alone cannot achieve the desired result, namely, the extermination of the insects.

For this reason it is recommended that the acclimatization and diffusion of super-parasites should be carried out to the greatest possible extent in all countries.

The Section recommends that, in order to prevent the diffusion of San José scale in European countries which are free from this disease, the International Institute of Agriculture in Rome should organise, as soon as possible, an International Conference for the study of measures to be applied both in infested countries and in countries not infested.

In these measures should be included the unification of the various regulations for facilitating the transit of fruits and also those relative to protection against the introduction of noxious insects.

*Subject 9: Phytopathology.*

Section V (Phytopathology) again draws the attention of Governments to the great dangers presented by cryptogamic diseases of cultivated plants and the often serious losses caused by these diseases to agriculture.

It recommends:—

(1) That scientific phytopathological research on plant pathology, properly so-called, and also phytopathological genetics should be favoured as much as possible;

(2) That in all countries an organisation should be established for the protection of crops on a collective basis. In order that this collective action should give the most complete results, the Section is of the opinion that it should have a compulsory character

(3) The Section also draws the attention of all phytopathological experts to "apoplexy" of apricot, plum and cherry trees so as to determine the exact causes of this dangerous disease

## Sixth Section.

*Subject 10: Preservation and transformation, etc.*

The Section for the preservation and transformation of products of horticulture and fruit — growing,

Having heard and adopted the general report of Dr. D F FISHER, votes the following resolutions:—

It recommends that the Congress should include in the Agenda of the next Congress.—

(1) The study of packing and lowering of costs of warehousing in cold storage.

(2) Study of scientific and economic packing of each product.

(3) The adoption of a legalised packing and at the same time the determination of the proportion of packing material in relation to the total weight of each package.

## Seventh Section.

*Subject 11: Fruits and vegetables as foods and in medicine.*

In view of the assertions of medical science concerning the importance of fruits and vegetables as foods and in medicine, also in respect of public health—

The XI International Horticultural Congress approves all efforts made towards improving the quality of fruits and vegetables. It particularly supports the deve-

lopment of adequate propaganda for increasing the consumption of fruits and vegetables and considers it indispensable that these foods should be made available to the public at reasonable prices.

### Eighth Section.

#### *Subject 12. Exchanges, organisation of exchanges, etc.*

Section VIII congratulates Senator MAROZZI on the authoritative work presented by him and —

Acknowledges this general report which Section VIII considers as adopted in its essential parts,

Takes note of the observations and communications of the Delegates for Germany, Austria, the Netherlands, Palestine and France

Takes note also of all the national reports presented to the Congress,

Requests that all this documentation should be assembled, printed and returned to the International Institute of Agriculture to be co-ordinated and practicable conclusions extracted

It is only when this work of adaptation and co-ordination of views expressed by different reporters and speakers has been completed that the proposal made by M Rivoire, in the name of the French Delegation may be put into practice for calling an International Conference, for the organisation and regulation of exchanges of all horticultural products, chiefly in Europe and afterwards in countries outside Europe, in which the Official Delegates of Governments should be accompanied by representatives from the professional organisations interested.

### Ninth Section

#### *Subject 13. Trade in plants, parts of plants and seeds*

In order to prevent fraudulent sale of living plants, trees and shrubs in the local public open-air markets, the XI Congress condemns the peddling and sale of trees outside the regular short term markets.

The exposure and peddling of trees with bare roots in all weathers and intemperate seasons and their repeated exposure sometimes during several weeks are the causes of many of them not taking root again and consequently leads to disappointments and discourages buyers

These methods are also a cause of propagation of plant diseases

In addition, this merchandise is generally sold by persons who have bought throw-out plants. Consequently, buyers cannot be sure of the authenticity of varieties thus put on sale

For these reasons the Congress warns buyers against all sorts of plants exposed for sale under conditions unfavourable to their taking root again and giving no guarantee of quality and authenticity.

In the interests of the public and for the protection of plants, it requests that peddling should be prohibited or severely regulated in all countries, also the packing and sale of plants and trees outside the horticultural establishments, nursery-gardens, etc., directed by persons competent in the profession.

The XI International Horticultural Congress assembled in Rome from 16 to 21 September, and comprising the representatives of scientific and vocational horticulture throughout the whole world, considers it their duty to protest strongly against the sale of plants, in a state of repose or of vegetation, in large shops, one-price shops and bazaars.

The prolonged exposure and sale in inappropriate localities, generally heated and with a desiccating atmosphere, is not suitable for plants.

The fact that their roots are left too long out of the soil makes it difficult if not impossible for them to take root again, and in any case has an adverse influence on their future development.

In addition, sales are made by unqualified staffs who are ignorant of species and varieties and the methods of cultivation.

The shops in question have only one object in view: to assure sales by means of an attractive presentation and abnormally low prices made possible by the fact that they disregard the choice of varieties and the quality of the merchandise offered. The interests of the buyer are not considered.

The buyer, deceived by the appearance, does not receive the full value of his money and becomes discouraged by the repeated failures in the plants purchase by him.

In consequence, the International Horticultural Congress of Rome, acting in the interests of the public, requests the competent authorities in all countries to forbid the sale of plants, parts of plants and flowering bulbs in shops not properly equipped for this purpose, such as one-price shops, bazaars, etc.

#### Closing Session 20 September.

*(Extract from the summary)*

M. RUVS, Secretary of the International Committee for Horticultural Congresses, announces that an invitation has been received from the German Government to hold the XII International Horticultural Congress in Berlin in 1938.

He also announces that an offer has been received from the International Federation of agronomical technicians to undertake the management of the International Horticultural Bureau under the aegis of the International Institute of Agriculture which would correspond with the wishes of the International Committee for Horticultural Congresses

S. EX. G. ACERBO, President of the International Institute of Agriculture thanks the International Federation of agronomical technicians and states that their proposal will be discussed with cordiality and appreciation by the Permanent Committee of the Institute.

M. Bois thanks S. Ex. G. Acerbo for this announcement

### BOOK NOTICES

WISMULLER, FRANZ X., *Geschichte der Moorkultur in Bayern*, II. Teil *Die Zeit von 1800-1825*, 397 p. München 1934, Verlag Ernst Reinhardt.

The first volume of this history of the cultivation of peat land in Bavaria appeared in 1909. Owing to the war and the crisis, this second volume was not able to be published until now. It includes the period 1800-1825 and is particularly interest-

ing as it shows the development of the cultivation of peat land in Bavaria (the first volume ended at the year 1800). In an epoch such as the present, when agrarian reform, land reclamation and internal land settlement are an essential part of the agrarian programme in numerous countries, it is important that the cultivation of peat lands should be followed in detail in countries where the development of these uncultivated lands has been and still is of the greatest importance.

It is to be hoped that the Author will continue this work as soon as possible, and bring it up to the present date. Persons interested will find in the history of this work, the results and set backs experienced in times past and valuable information on all projects for land reclamation necessary at the present time.

N. v. G.

DE SIMONE Vittorino, *Attuali condizioni dell'industria zootecnica italiana e direttive per il suo incremento*. Estratto dai *Nuovi Annali dell'Agricoltura*, Roma 1935-Anno XV, p. 85-232.

This is a report by the Inspector in Chief of the Italian Zootechnical Services to the Higher Zootechnical Council, giving a complete and accurate account of the present situation of stock-breeding in Italy and its development during the last few years.

The Author describes the general situation of animal production in the world with special reference to the movement of prices and the development of production and consumption of animal products. He comes to the conclusion that the general depression of world production could not fail to affect animal production in Italy.

The *trade balance* of animal products which in 1925 and 1926 showed a considerable credit and a net profit of 321 and 401 million lire respectively, has shown a deficit during the following years of 515 million lire in 1929 and 89 million lire in 1934. The animal product which has the greatest influence on the deficit in the trade balance is meat in all forms and qualities. In fact, Italy imports more than 10 % of the national requirements.

The prices of animals, which were almost stable in 1927 and 1929, fell progressively from 1930 until, in 1933, they had reached very low figures.

The movement of trade and prices abroad could not fail to have a very unfavourable influence on the yield in animal production and resulted in farmers showing a tendency to reduce their stocks. The census in 1930 did not give a complete idea of the reduction in stocks that had taken place as the preceeding census were made in 1908 and 1918, the results of which cannot be compared with that of 1930 as they refer to areas of different dimensions. It may be supposed however, that a considerable diminution has taken place during the last few years though, compared with 1908 the figures for 1930 show an increase of 5.4 % in horses, 8.5 % in cattle and 27.6 % in pigs. It must be remembered, however, that the population in Italy (within the 1908 frontiers) has increased by 16.7 % in 1930 and by 19.4 % in 1932. It results that there is an increasing lack of balance between the stocks of animals and the population which has an effect on the balance of external trade.

On the other hand, stock-breeding during the last few years has been increasingly directed towards *milk* production. The stocks of cattle bred for this form of production, or for double or triple purpose, have increased considerably in comparison with stocks of cattle for draught purposes or for the butcher, which, up to a short time ago, were the most numerous. It follows that the situation with regard to national requirements in milk products is more favourable than with regard to other animal products.

The question of prices is also very pressing and it is still necessary to arrive at prices which are remunerative to producers, especially in respect of the milk industry.

The Author points out the principal causes of the crisis in animal production —

(1) the world crisis — (2) insufficiency of forage production — (3) appearance of imported meat on the Italian market at very low prices — (4) the reduction in meat consumption from 22 kg. per capita in 1928 to 18 kg. per capita in 1932 — (5) too high retail prices of meat.

The measures taken by the Italian Government to improve the situation of animal production is directed towards protecting the Italian market against foreign competition — increasing stocks of forage — improving the economic bases of production by reducing the costs of production, by improving live-stock, by better utilisation of animals and by an economic organisation of breeders.

The measures taken by the authorities up to the present have given very satisfactory results. In respect of the improvement of stocks of cattle in the country, work has been carried out on 24 principal breeds, representing a total of 6 million head or 85 % of the total stocks of cattle — 1881 breeding centres have been established, with 56 000 cows and 2 000 bulls, the milk of 35 000 cows is recorded and 262 recorders work in the provinces under the supervision of the Travelling Chairs of Agriculture.

The great activity at present shown in favour of animal production makes it possible to hope that a more prosperous future is in store for this important branch of Italian agriculture.

Clement DUVAL, Roger DOLIQUE, preface by H. L'VE *Dictionnaire de la chimie et de ses applications*, 747 p., Paris 1935, Hermann Cie, editeurs.

This small dictionary gives the modern definition of the most important words used in chemistry and its application. It thus supplies a long felt want which has been chiefly felt by compilers of bibliographies, writers and translators of treatises on chemistry, encyclopedias, etc. who will now be provided with an exact translation of terms, in a clear and precise manner and according to the most up to date principles accompanied by a short explanatory note. This work therefore will be extremely useful not only to chemists, but also to all those whose work is connected in any way with chemistry. Moreover, M. DUVAL and his collaborators are well known for the active part they have taken in the composition of important treatises on chemistry which have appeared recently and which mark a real revival in scientific activity in France. In this dictionary will be found various very useful tables, physical and chemical constants and a short and very clear chapter on chemical nomenclature.

SENNI L. (Console Milizia forestale), *Gli alberi e le formazioni legnose della Somalia*, Biblioteca Agraria Coloniale, pp. 305, ill. Firenze, 1935-XIII, Istituto Agricolo Coloniale Italiano.

The Author first describes the natural conditions of Italian Somaliland where the maximum temperature exceeds 40° C, rainfall is rare and the wind (monsoon) blows unceasingly, conditions all of which increase soil evaporation and thus render it very difficult to grow forest trees.

He afterwards describes the botanical zones and regions and gives detailed information on Trans-Juba, a region of which little is known concerning its forestry. He mentions the pure stands and discusses the bush vegetation and its composition, which con-

sists of a mixture of species chiefly belonging to the genus *Acacia*, with a few trees sometimes evergreens, with lianas, succulent plants and a carpet of herbaceous plants.

In Italian Somaliland, there are 107 families of plants including 73 woody species. These amount to a total of 759, of which 124 species are forest trees, 129 are shrubs and 506 are bushes. Among the woody species are found plants which may be used chiefly for local requirements. On account of climatic conditions, the wood forms irregularly and the specific weight is so great that it is not suitable for transport by water. The best wood is "degan" (*Mimusops* sp), but it is only found in very small quantities. Trees yielding wood for fuel or charcoal are not very numerous owing to excessive felling by the native population.

There are numerous plants producing tanning substances, such as the *Acacias* and other genera which constitute a characteristic formation along the banks of the Juba and its estuaries (mangroves). Other regions produce colouring matters, gum similar to gum arabic, incense, myrrh and fibres for basket work. The "dum" palm, the fruit of which is used for making buttons, is found in small quantities, but the natural reproduction could be greatly increased.

All these plants are of economic importance in the resources of Somaliland.

The Author gives valuable information on the preservation of and increase in the forest wealth of the Colony. In brief, this important publication describes in detail all the families and botanical species of Italian Somaliland and concludes with a list of local names with their corresponding scientific terms.

This work by Dr. SENNI is completed by interesting photographs and very clear drawings and is certainly a noteworthy contribution to the knowledge of the flora of Somaliland.

G. T

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# MONTHLY BULLETIN

OF

## AGRICULTURAL SCIENCE AND PRACTICE

### ORIGINAL ARTICLES

#### IMPROVEMENT OF CEREALS IN ALGERIA

By its climate Algeria is suited to cereal production, especially in the regions of the high tablelands which are renowned for their wheats; there are, in fact, certain climatic analogies between these regions and the great wheat exporting countries of India, Australia, the United States, Canada and the Argentine Republic.

It is actually possible to cultivate in the colony some varieties of wheat which originate from these countries, and no marked differences are observable in their development or in the grain produced.

Pusa wheats, Manitoba wheats, and also the Hindi and Florence strains, are introduced into Algeria, and on the other hand some of the Algerian varieties of hard wheat, oats, barley, are cultivated and appreciated in some of the countries mentioned above (1) \*

The North African cereals have been known for a long time past through the medium of reports, at different periods, relating to their merits and importance, and to the trade in these cereals. Much use of them was made in Italy in the time of the Romans, and also in Spain and France. The regulation of supplies of African wheat, from Algiers to France, undertaken by the firm of BACKI, was the occasion of the occupation of the Algerian capital, and ended in putting a stop to the piracies of the Barbary States.

At the time of the occupation of Algiers, the Arab and Kabyl cultivators were growing only the hard wheat or African wheat (*Triticum durum* Desf.) and barley (*Hordeum tetrastichum* Korn), very seldom rye (*Secale Cereale* L.); there was no cultivation of soft wheat nor of oats (2).

It should however be added that there were at the time in the South Algerian territories and in the Sahara two very large groups of wheat varieties, approaching more or less to the soft wheats, also of certain Asiatic types, and spelts, viz.:

Oasis Wheat (*Tr. vulgare oasicolum* L. D.)

Sahara Spelt (*Tr. Spelta Saharæ* L. D.)

\* Numbers refer to the Bibliographical Notes.

These have been made the subject of enquiries published by the Laboratory of Agriculture (3).

At the date of the French occupation, a large number of *varieties of hard wheat*, grown together, were being cultivated on the territory which extends from the Mediterranean to the mountains forming the northern border of the Sahara. This cultivation has been kept up among the native population for a long period of time, in fact up the present day in certain regions, although the wheat has never been subjected by them to methodical selection as we know it; the method followed has been rather a simple choice of ears or of grains without distinction of varieties such as may be seen in process even today.

The same was done in the case of the barley, and undoubtedly also for the *Sahara wheats*. The study of these last, which was begun in 1908, has shown that these wheats in fact consisted in an immense number of forms variously mingled, as many as, if not more than, the varieties among those previously mentioned.

Pure varieties were not cultivated by the Kabyls and Arabs and it was only some few years ago that improved wheats were found among them

\* \* \*

From 1830 onwards, the Agricultural Services and Establishments of the State, the agricultural associations, the farmers, traders and millers have to improve this state of things by the *introduction* of foreign cereals (whether from Europe, Asia, India, Abyssinia or America), especially of soft wheat, a fact which appears from articles on farming and agricultural periodicals published since 1830 (4).

It was in this way that soft wheat and oats were introduced at an early date and cultivated by the settlers, then later by the native populations; it should however be noted that these latter were slow in adopting the cultivation of these two cereals, giving preference always to the former Algerian cereals hard wheat and Algerian barley.

By the timely introductions of these two new kinds, cereal production was noticeably improved in Algeria. This is readily seen from the proportion borne by these two cereals at the present time to the total of the production, *viz.*, about one fifth during the season 1933-1934, as the following figures show

	Area (hectares)	Production (quintals)	Export (quintals)
Hard wheat. . . . .	1,194,000	7,722,000	2,097,000
Soft wheat . . . . .	451,000	4,124,000	1,053,000
Barley . . . . .	1,267,000	9,743,000	715,000
Oats . . . . .	182,000	1,725,000	47,000
Rye . . . . .	1,000	11,000	—
Totals . . .	3,095,000	23,325,000	3,912,000

It may be remarked that an important place is also taken by these two cereals in respect of the exports; the figures shown above have frequently been exceeded.

The introduction of the new varieties has had a certain influence on the conditions of the already existing varieties; new mixtures, still more complex, of hard and soft wheat are found, and undoubtedly natural hybridisations occurred between the two species of wheat, a process which still takes place, and explains the complexity of certain cereal populations (5).

These conditions were noticeable at the epoch of our first investigations on Algerian cereals, carried out on the crops of 1906-1907, 1907-1908 and subsequently. In the harvests of these dates, observations revealed only mixtures of species, varieties and numerous sorts in undefined proportions, and this for all the cereals; exception must however be made for the wheats named here after, which showed a certain degree of purity, viz.:

*Tuzelle d'Aix*, beardless Odessa wheat or *Tuzelle de Bel-Abbes*, native of Provence;

*Richelle hative* or *Richelle d'Alger*, highly recommended by L. TRABUT, but which disappeared, owing to mixture, for a number of years;

*Bladette de Besplas* or *Tuzelle de Descartes* introduced from Languedoc and still grown in the colony for its high yield and in spite of its inferiority in baking quality. There is at the present time a somewhat rapid decrease going on in the areas devoted to this variety.

\* \* \*

In the course of the study of cereals made during the season 1906-1907 it was possible to discover the elements of the *pedigree selection* undertaken methodically for the first time in Algeria by the Laboratory of Agriculture of the Algerian School of Agriculture, which had been entrusted with the work of cereal improvement in Algeria. This work included in principle:

- the study of the varieties of the country;
- the isolation of the elements, or lines, constituting these varieties;
- the culture and study of the lines in respect of their behaviour, and their agricultural and industrial value;
- the introduction of new varieties;
- hybridisation or cross fertilisation with a view to creating new varieties.

The selection was chiefly carried out on the Algerian varieties and many thousands of these were isolated and sown in the course of these and subsequent years, the well known rules of modern selection being followed.

The examination of the Algerian varieties of soft wheat disclosed their more or less pronounced *heterogeneity*. The undermentioned wheats, viz, *Blé de Mahon*, *Tuzelle rouge barbue*, *Tuzelle de Bel-Abbes* or beardless Odessa wheat, *Bladette de Besplas* or *Tuzelle de Descartes*, yielded varieties some of which fully corresponded to the requirements of growers and millers. These varieties have been propagated, have replaced the former mixed kinds and are grown over large areas. Such are the selected Mahon wheats giving Nos. 11 - 50 - 57, to which should be added the large grained Mahon wheat, improved under our directions and propagated by M. DEMIAS, farming at Bel-Abbes (*Blé Demias*).

These varieties found among the Algerian wheats are in certain regions still preferred to the new wheats, as appears from statements published by the Algiers

Chamber of Agriculture and from others made in the « Journées Economiques de l'Oranie » (7).

Selected Algerian wheats have been, until recent years, regarded as satisfactory if not as excellent by farmers, millers, importers and consumers alike. The bakers, who frequently did the kneading themselves, were able to make an appetising bread of a pleasant odour with the flours prepared from Algerian wheats, with due regulation of the proportion of water according to the consistency of the dough during the kneading. Nowadays it is not the same; the bread is often tasteless and odourless for a number of reasons which it is difficult to state precisely. It is possible, however, by means of the investigations already made on the subject, or in course, to determine the action of the factors entering into breadmaking, more especially the influence of the variety of wheat. The results of such research will greatly facilitate the work of wheat breeders as well as that of the millers, enabling them to ensure the proper balance in their flour admixtures, using flours from strong wheats, and the ordinary flour of the native wheats.

The use of foreign wheats of various origin has become more common, and differences are noticeable between these imported wheat themselves and also between them and the native wheats; some make the bread very white, with others a very high yield in bread is noted.

Since the comparison is in favour of these latter, or *strong wheats*, it follows that the Manitoba varieties or similar wheats are much sought after by the millers for the following reason: 100 kg. of flour of strong wheat may yield up to 150 kg. of bread, while the ordinary soft wheat flour yield less, sometimes 125 kg (8).

The attention of wheat breeders and growers was drawn towards the production and cultivation of varieties showing this special quality so much desired by the bakers.

In Algeria it was only during the war and afterwards that the cultivation trials were made in such wheats (Manitoba, Marquis, Garnet) or that the investigations into the varieties have fulfilled these conditions. Early maturing wheats were introduced by the Laboratory of Agriculture especially from Egypt in 1920; Hindi, Nos. 3-4-15-25; from India in 1925: Pusa Nos. 4-6-12-52, and many others proving cultivable in Algeria (9).

These wheats, including some such as Pusa No. 4 and Pusa No 6, with a high reputation in India and in Australia as strong wheats, were not appreciated at the time as they should have been by the Algerian, milling trade, and have in fact actually been refused. Hindi wheat, sold under the name of Sahari, quite mistakenly, and now not found among Algerian crops, had none the less some qualities now much in request, as may be seen from the good baking quality of certain hybrids, e.g., Hindi No. 25  $\times$  Mahon No. 11, the W of which has the character of the strong wheats: W = 231.

The position, however, became modified at a later date, when quotas were imposed in respect of the importation of the foreign wheats which the millers had been accustomed to use. Thereupon the needs of the industry for its raw material made it necessary that strong wheats, not before known in Algeria, should be produced locally, and the Algerian farmers began at once to

grow the wheats required by the milling trade. The cultivation of wheats not appreciated some years before was now resumed: Pusa Nos. 4-6-12 and new wheats were tried: Florence  $\times$  Aurora No. 588 – Pusa No. 422 – Cadet No. 335 – Barrota – Irakie, which seemed to do very fairly well on the coastal areas. Some of these wheats proved not fully satisfactory from the agricultural or industrial standpoint, either because there was too much shedding (Pusa No. 422), or because they were mixed, or that they did not meet requirements of baking quality of flours; in addition they were liable to be affected by frost.

The study of Florence  $\times$  Aurora No. 588 made by the Laboratory made it possible to isolate some twenty forms descended from this hybrid; among these may be mentioned Florence  $\times$  Aurora Nos. 8189-8191-8193, which yield a grain of good quality with high W: 172 to 313.

Pusa No. 4 is a wheat which proves very valuable; it is not liable to shedding as is Pusa No. 422 or Florence  $\times$  Aurora No. 588, and the flour shows a W reaching 300. It breeds true in Kabyle, in the Boufra region and in the Cheliff; its yield is good.

Florence No. 290 does well at Maison-Carree and also breeds true.

To arrive at further results in regard to the productivity and baking capacity of wheat grown in Algeria, the Laboratory proceeded to the hybridisation of the varieties and sorts showing the qualities required for breadmaking.

From Pusa No. 4 (India) for example, which is a good parent wheat for Algeria, there have been obtained by hybridisation with the Florence (Australia) and Mahon (Algeria), forms already cultivated such as the hybrids:

Nos. 8121 and 8122 (Florence No. 290  $\times$  Pusa No. 4), of which the W exceeds 300 on the Algerian littoral, a region regarded as not favourable, in some localities, for the production of wheat at high W.

No. 7760 (Mahon  $\times$  Pusa No. 41) at Maison Carree which supplies a flour of W as high as 188.

With regard to soft wheat, growers have at their disposal pedigreed varieties coming from:

Algerian varieties: Mahon;

foreign varieties: Pusa, Florence, Tuzelle de Malaga;

hybrids: Florence  $\times$  Aurora, Florence  $\times$  Pusa, Mahon  $\times$  Pusa.

Such varieties with their differing qualities increase the range of cultivation possibilities that may be effected by growers in view of the nature of the soil, the climate and the markets available (10). Observations relating to *resistance to frost* are few in spite of the importance of this on the high tablelands; the new early varieties are inadequate in this respect.

\* \* \*

The *improvement of hard wheat*, which in 1907 was effected only by mixtures, has been brought into line with that of soft wheat, and certain varieties are to be seen on wide areas of the sown fields, as:

*Hedba* No. 3, with a light coloured flinty grain, in the Department of Algiers and Constantine;

*Langlois No. 1527*, with a flinty grain, to be found in very many regions of the Tell;

*Tessala No. 294*, with a fine light coloured grain, grown in the Bordj-Bou-Argeridj;

the *Hadjini* wheats with flinty grain of average size, much in request, reproducing itself in the region to the East of Constantine;

the *Bidi* or *Oued Zenati* wheats.

Trials have been made in the cultivation of other hard wheats, such as Sbei, Biskri of Tunisia.

Cross fertilisation of hard wheat and the study of semi-hard forms have given certain results as regards early maturity, length of straw, and absence of beard, and it seems possible to improve this type of hard wheat, both in cultivable capacity, and in respect of utilisation in the semolina and macaroni industries. Varieties of hard wheat in Algeria show noticeable differences from this latter point of view, independently of those observed from region to region.

The improvement of the *Sahara wheats*, which are remarkable for their very full flowering ear, their resistance to heat, their high yield in a suitable environment, has also been undertaken; highly productive lines have been obtained among some hundred varieties or sorts including *Baroudi*, *Hamra*, *Sebbaga*, *Bahalane*, *Chedjera* wheats. The propagation of these has been effected successfully by the officers of Native Affairs in the Saharian regions of El-Goles, Timimoun and Adrar.

In the Portuguese colony of Angola, certain of these varieties, such as *Baroudi No. 55*, *Hamra de Deldoul No. 59*, *Sebbaga No. 2*, *El Harcha No. 42*, have produced on the Benguela plateau up to twice as much grain as the other varieties; in the Egyptian Soudan, at Khartoum, the *Abdessalem* wheat, a remarkable variety, has proved excellent and productive; these selected varieties have often been used as parent plants and are still so used to-day.

From the study on barley an idea is gained of its heterogeneity; this cereal includes in Algeria several species and varieties and an immense range of sorts of differing qualities: to-day the following pedigree forms are cultivated, obtained at Maison-Carrée: *Orge carrée*, or four-rowed barley, of Algeria, Nos. 48 and 183, and *Orge Martin*, obtained by mass selection some years ago in the Department of Oran.

Two-rowed barleys are increasingly preferred by the brewers, on account of their content in nitrogenous substances, which is less than that of the four- or six-rowed barleys. Trials relating to the two-rowed forms have shown, after 10 years of experiment, that they can be grown over a large part of the Algerian littoral as is the case with the ordinary barleys; an early ripening variety, designated as No. 43, of good crop and industrial value, has been propagated for several years.



With the object of discovering new improvement factors for barleys, cross fertilisations were effected between the four-rowed barley and the two-rowed No. 43. A number of hybrids were obtained and more than 100 lines are under observation, as well as a collection supplied by the French Society for the encouragement of the cultivation of brewing barleys.

Trials in the growing of two-rowed barleys have also been made by Algerian breweries, with the object of improving the production of this cereal.

\* \* \*

*Oats are also characterised by an extended range of varieties and sorts differing in height of straw, length of the spikelet, proportion of the kernel in the grain, etc. (12).*

At the present time only Algerian oats (*Avena algerieniss* L. Grabut) are grown, mainly the red oats, Nos. 31 and 61, and sometimes the Algerian black oats; a variety is propagated by the Agricultural Institute of Algeria under the designation No. 912. These selected oats often prove superior to the ordinary oats which are liable to have too mixed a character (red, black and white oats).

Since 1907, comparative trials have been carried out on numerous varieties which are cultivated of the different forms of oats; none of these varieties have done better than the selected Algerian red or black oats. The European oats (*Avena sativa* L.), which are late in maturing or too liable to rust, do not ripen well and produce less than the Algerian.

\* \* \*

The improvement of rye, which is grown on the littoral as a wind-break for the protection of early vegetables, vines and other plants, has not given permanent results at Maison-Carree.

The occurrence of cross-fertilisation makes it impossible to practise in large scale farming any form of selection other than mass selection with choice of individuals showing long thick straw, resistant to lodging.

The ryes of North Africa, like the native hard wheat and barley, are heterogeneous in character; numerous variations appear, as a rule not permanent.

\* \* \*

Cereal improvement in Algeria, which is undertaken by the Laboratory of Agriculture of the Agricultural Institute, is carried on in collaboration with the technological laboratories, the experimental stations and farms, and the Agricultural services existing for technological study of seeds, multiplication of varieties and breeding out of those that appear to be the best.

Breeding out of selected cereals is fairly well carried out; unfortunately the numerous cultural operations required for cereals, sowing, harvesting, threshing, grading, etc., involve more labour than the farmers can command, and accordingly it is impossible to preserve to the extent desired the purity of the seeds of the varieties cultivated on a farming scale; they deteriorate somewhat rapidly in value so that, although clearing is constantly done, multiplication and extension

are checked. It is difficult to define precisely the importance of cross fertilisation in the case of the existing varieties, but it is apparently small.

It should be added on the other hand that the production of and trade in cereal and other seeds is little developed in Algeria; there are as yet no firms which themselves produce cereal seeds, and this is to be regretted, in view of the fact that in Algeria more than 3,000,000 hectares of wheat, barley and oats are sown every year.

It may be hoped that the Agricultural Associations will direct a part of their activity towards this production, essential at present, since the industry requires increasingly specialised and standardised products. These requirements can be met only by means of the *cultivation of varieties with recognised properties and of a suitable purity*.

Cereals from selected seed are grown by a large number of European growers, while the native cultivators make only a limited use of improved cereals, and in fact only cultivators whose land lies close to European farms attempt it at all.

The production of improved cereals requires a more careful cultivation and also higher expenditure, and in consequence buyers should take account of this in a measure corresponding to the real value of these cereals, especially in the case of wheats of high quality, and the so-called strong wheats. Production of these wheats might be encouraged for a certain period, by means of premiums, as has been done in various countries, at least as regards the varieties of the first rank.

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## METHODS OF ANALYSIS AND APPRECIATION OF WHEAT, FLOURS AND BREAD, PARTICULARLY IN RESPECT OF INVESTIGATIONS ON THE BAKING VALUE

(Second Part) \*

### CHAPTER II. — ANALYSIS OF FLOURS.

The quality of the flour is the fundamental basis of good bread and it can not be estimated in relation to a single factor only. The data that must be taken into consideration when judging whether a flour is suitable for bread-making are many and complex. Bread is in no sense an inert, but rather a living organism, in which are to be found numerous chemical and bio-chemical phenomena that, as will be seen later, have an important influence on its quality.

The tests to which flours must be submitted are the following: (A) Physical and organoleptic — (B) Chemical — (C) Bio-chemical — (D) Physico-chemical — (E) Mechanical.

Before discussing the methods of analysis, it is necessary to mention briefly the *taking* and *preparation* of samples.

*Taking of samples.* — This operation should be carried out with care and accuracy in order to obtain a homogeneous sample which corresponds with the flour from which it is taken. Special instruments, called sampling rods, allow material to be taken at varying depths, either from the sack or in the warehouse in which the flour is stored.

The samples are then mixed together according to the methods used for mixing the grain and the prepared sample is placed in a sealed tin treated with paraffin and kept until required for use.

#### (A). — PHYSICAL AND ORGANOLEPTIC EXAMINATION.

This is divided into: examination by touch (to ascertain the degree of softness of the flour, whether it contains lumps, etc.) — examination of the *odour* — ex. of the *taste* — ex. of the *colour* — ex. of the *fineness*.

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\* For the first part, see this *Bulletin* No. 9, September 1935.

*Examination of the odour.* — The odour of the flour should be the same as that of wheat. When there is any doubt, the odour may be brought out by boiling the flour in water with a small quantity of caustic soda.

*Examination of the taste.* — The taste should be that of wheat. If the taste is unpleasant or abnormal, the flour has either not been properly preserved or else contains some foreign substance.

*Examination of the colour.* — This is carried out to a large extent both in the milling industry and in the trade. The colour of the flour gives a fairly accurate idea of quality both as regards bolting and the presence of foreign bodies which affect its purity. The determination of the colour of the flour may be divided into: *determination of whiteness* (reflected colour) *determination of the chemical constituents which give colour to the flour.*

The determination of colour by reflection does not clearly indicate the content in chemical elements which give colour to flours. The factors which determine the greatest differences in colour are as follows: (1) content in bran — (2) content in carotin — (3) presence of impurities and foreign bodies, such as dust, weed seeds, rust, spores, etc.

The content in bran depends on the system of milling employed; the content in carotin on the variety of wheat milled. The variations in colour, due to foreign substances, are chiefly dependent on the colour of such substances, but may also be due to other causes, such as the oiliness of seeds in the flour, which cause variations in the absorption of light. According to some authorities enzymatic activity, particularly that of oxidizing ferments, may also influence the colour of the flours. In addition to these factors there are others among which may be mentioned: (1) the coarseness of the grains — (2) the moisture content — (3) the degree of pressure exercised — (4) the intensity and direction of the light under which the examination is made.

It is therefore evident that in determining the whiteness of the flour there are many possible causes of error. The PEKAR method, however, has remained the basic process followed for a rapid determination of colour in the practice both of the flour industry and of the flour trade (1). \*

*PEKAR method.* — On a black smooth wooden board about 12 cm. long by about 8 cm. wide, small foursided blocks of flour are made by means of stamps (5 cm. long, 3 cm. wide, 5 mm. thick). The board is then carefully placed at a slanting angle in a basin of hot water and left for about one minute; it is then slowly removed and dried at 100° and the difference in colour is noted, which is much more apparent when the flour is completely dry.

*Examination of the colour of flours.* — Numerous methods are used which, according to the quantity and quality of the solvent used, lead to different and divergent results.

\* The figures in parenthesis refer to the Explanatory and bibliographical notes, pp.

For researches on the colour (carotin) the KENT JONES method (2) has been adopted. For this there are required:—

- (1) a DUBOSQ colorimeter: better results are obtained with the PULFRICH photometer and colorimeter with photoelectric cells (LANGE apparatus),
- (2) reagents: (a) benzine; density, 0.720-730;  
 (b) a coloured solution obtained by using the following mixture:  
 10 cc. of solution of potassium chromate at 0.5 % 1.5 cc. of solution of nitrate of cobalt anhydride at 10 % of solution. The whole is brought to 100° with distilled water.

The procedure is as follows: 20 gm. of flour is placed in a graduated tube, 100 cc. of benzine is added and the whole is mixed and shaken in an agitator for one hour, after which it is left to stand for a night. The liquid is then separated from the precipitate, filtered (using filter No. 601-602) and the clear solution is compared with the sample.

*Determination of fineness.* — The sieving test may be carried out by hand by means of a series of small sieves with varying fineness of mesh. At the present time small electric « plansichters » are used, which answer the purpose perfectly and allow the various degrees of fineness of the flours tested to be studied.

#### (B). — CHEMICAL METHODS.

Chemical tests comprise the following determinations. moisture — ash — cellulose — protein substances — fats — gluten — sugars — acidity.

*The determination of moisture, ash, fats and protein substances* is carried out as for wheat.

*Determination of cellulose.* — The WEENDEN, method adopted for wheat is also highly suitable for flours. Mention should also be made of the recently proposed KURSCHNER and HANACK method (3), introduced by BELLUCCI (4) for his experiments on flour, which is highly recommended for its rapidity and accuracy.

In a glass sphere, capacity 100 cc., to which is attached a glass tube 1 metre long and 5 mm. in diameter, is placed a liquid reagent thus composed: 45 cc. of acetic acid at 1.80 % in weight and 4.5 cc. of concentrated nitric acid (p. s. = 1.4) if the sample examined is flour or forage meal; 30 cc. of acetic acid and 3 cc. of nitric acid for other by-products. By means of a funnel 3 gm. of baking flour are introduced (2 gm. of forage meal or 0.3 gm. of other by-products), the refrigerating tube is applied and heating takes place by means of a small flame taking care to avoid carbonisation of the substance. The flame is regulated and the heating at low boiling point is carried out for 25 minutes in such a way as to avoid the escape of steam from the refrigerating tube. Filtration is then carried out on a porous crucible. The glass sphere is washed with 5 cc. of hot reagent, then with hot water, a little alcohol, ether and finally with hot water again. The crucible is placed in an oven at 105° for one hour and then weighed. It is then calcinated and weighed again. The difference between the two weights gives the value of the crude ash-free cellulose.

*Determination of gluten.* — The most important chemical tests are those made on the gluten and its constituents, as the baking value of the flour is chiefly dependent on this substance.

Gluten is formed by the action of water. In the cells of the wheat there are two gluten forming proteids which, under the action of water, are transformed into gluten. Gluten is considered to be formed by gliadin and glutenin and is not a simple mixture, but, according to BUGENBERG DE JONG, is a colloid complex, based on an electric relation between the two substances. It is evident that in extracting the gluten many variations may occur due to the system of extraction adopted and also to the physico-chemical conditions.

The content in gluten of a wheat and its qualities are clearly not only dependent on the quantity of nitrogenous substances and consequently on all the factors already described having an influence on the wheat (variety, conditions of cultivation, soil, climate, etc.), but are also influenced by other factors, among which should be mentioned the fineness of the milling and the conditions under which the gluten is extracted, such as the hardness and composition of the water employed, the length of time the dough is left to stand, the temperature of the water, the length of time employed in washing the gluten, the methods of the individual operator, etc.

It is therefore clear that it is necessary to standardize as far as possible the methods of extraction in order to arrive at corresponding and comparable results.

Many processes are now in use; frequently spring water is used which, having a composition that varies from place to place, leads to considerable variations. MAROTTA and VERCILLO (5) adopted in their experiments the solution of the type advised by BERLINER and KOOPMANN (6). This is a solution of sodium chloride free from magnesia, which, with the addition of sodium phosphate, is brought to the ionic concentration considered by DILL and AISBERG as being the best for preventing dispersion of the gliadin (7).

*Extraction of gluten.* — In order to eliminate any influence due to the operator or to working conditions, it has been considered advisable to abandon the system of hand extraction and to use solely mechanical means. True extraction is carried out with the HANKÓCZY apparatus and for freeing the gluten from the starch still present, we use our own separator which in its method of operation resembles that of the machine adopted in the industry for the preparation of gluten, as well as ARPIN'S « Essoreuse ».

The method of procedure is as follows: 50 gm. of flour are kneaded for 5 minutes with 20 cc. of standard solution (8) and the dough obtained is left to stand for half an hour after which two morsels of dough, 20 gm. in weight, are taken and placed in the two rubber bags of the HANKÓCZY apparatus and double extraction is carried out so as to obtain more accurate results. During the operation the standard solution kept at 18° is slowly dropped in until the washing water is clear.

It should be noted that the gluten thus extracted is not free from starch; in fact, if the protein content is determined (allowing that the protein substances are equal to nitrogen  $\times$  6.25) it will be seen that the gluten contains 75-87 % of protein substances and that the remainder consists of starch, fats, minerals, etc.

After carrying out the extraction, the two pieces of gluten previously extracted are passed through two steel cylinders revolving in opposite directions, about a tenth of a millimetre apart. This operation takes place under a jet of standard

solution and is completed in 40 minutes. In this way the greater part of the starch is expelled and the results are in agreement.

In our analysis we take, as already said, the average between the two weights, which are generally equal. This weight multiplied by 5 gives the content in wet gluten of 100 parts of flour; the dry gluten is obtained by drying the wet gluten in an oven at 105° for 12 hours, taking care to cut the surface of the gluten cross wise after half an hour in the oven so as to facilitate the evaporation of the water.

\* \* \*

Is the gluten content sufficient for estimating the quality of a flour and is there any constant relation between this quantity and the baking strength ?

Undoubtedly a good flour always contains a considerable percentage of gluten (generally a limit of not less than 8 % is required) and the absence or insufficiency of gluten renders the flour unsuitable for baking. It should, however, be observed that, although the strength of the flour is dependent on the presence of gluten, this is not dependent only on the quantity but also on the quality of that substance which is in relation to its physical and physico-chemical properties.

#### (1) Dosage of gliadin and glutenin.

Research work on the constituents of gluten has been the subject of numerous studies made with a view to the estimation of the baking strength of flour. Some writers are of opinion that the relation *gliadin: glutenin* is a sufficiently accurate criterion for estimating the quality of the flour. The methods of extraction, however, employed by them are so diverse that the results contradict each other and no final conclusions can be reached. According to SNYDER (9) the percentage of gliadin is much more important than the relation *gliadin: glutenin*.

FLEURENT (10) believes that the most satisfactory relation *gliadin: glutenin* is  $\frac{1}{3}$ , while SHARP and GOTNER, using alcohol at 70°, found for flour a relation *gliadin: glutenin* which varies little and approximates to unity.

*Determination of gliadin.* — 10 gm. of flour are added to 100 cc. of alcohol at 70° in a glass tube, with a roughend stopper, shaken frequently during the day. It is then left to stand for a night and shaken again in the morning and filtered, after the flour has been deposited. The total nitrogen in 50 cc. of the filtrate is ascertained by evaporation with a few drops of phospho-sulphuric acid, adding the remainder of the acid when evaporation is almost complete and following the method of KJELDAHL as for the nitrogen test. By means of the percentage of nitrogen found, the gliadin is ascertained by multiplying by 6.25 and brought into relation with the total nitrogen substance.

*Determination of glutenin.* — When the percentage of gliadin is known the content in glutenin may be calculated by difference. Certain investigators prefer to determine the gluten directly and, among the methods employed mention should be made of that of BLISH and SANDSTEDT (11).

*The BLISH and SANDSTEDT method.* — Requires the follow re-agents:

- (1) Solution N of NaOH
- (2) Solution N/5 of HCl

- (3) Solution of Bromothymol blue (0.10 of di-bromothymol-sulphonaphthaleina are ground with 3.2 cc. of solution N/5 of NaOH and brought to 25 cc. with ethyl-alcohol at 95°. It is necessary to filter)
- (4) Methyl-alcohol (should contain 96-99 % of  $\text{CH}_3\text{OH}$  and should be free from acetone).

8 gm. of flour are mixed in a Kohlrausch flask capacity: 200 cc., with 50 cc. of water and then shaken vigorously, and 5 cc. of solution N/20 of NaOH is introduced. The mixture is shaken every 10 minutes for one hour after which methyl-alcohol is added in parts of 50 cc. at a time, shaking sharply after each addition until the 200 cc. mark is reached. Another 5 cc. of methyl-alcohol are added to compensate for the volume occupied by the flour; the whole is well mixed and, after the starch has fallen to the bottom, the supernatant liquid is filtered through cotton. Then 50 cc. of this liquid is taken and introduced into a Erlenmeyer flask; a few drops of bromothymol blue are added and the gluten in is precipitated gradually adding by means of a burette the solution N/5 of HCl, until a light olive colour is obtained, corresponding to a pH of about 6.4.

After being left to stand for one hour the contents are poured into a 100 cc. tube and centrifuged for 10 minutes. The liquid is poured off and the glutenin is removed from the tube with a little water and placed in a Kjeldahl flask. The nitrogen is then determined and the value found, multiplied by 6.25, gives the percentage of glutenin.

In the Italian flours examined by, us (using the alcohol at 70° method) the relation between gliadin and glutenin was found to approximate to no relation was found, however, between this figure and the baking strength. This fact confirms results obtained<sup>1</sup> by other investigators, and shows the impracticability of using such systems of research for estimating the value of the flour.

*Determination of reducing sugars.* — The quantity of sugar present in the flour after milling is almost negligible. After a few weeks of rest the formation of small quantities of sugar will be noticed which are necessary for good baking.

The dosage of sugar in flour is carried out by us according to the BERTRAND method (12). It requires the following re-agents:—

Solution A: 40 gm. of copper sulphate crystals are dissolved in water and brought to 1000 cc.

Solution B: 200 gm. of Seignette salt + 150 gm. of sodium hydroxide are dissolved in water and brought to 1000 cc.

Solution C: 50 gm. of iron sulphate (free from ferrous sulphate, so that the permanganate of potash is not reduced) are dissolved in 200 cc. of concentrated sulphuric acid and brought to 1000 cc.

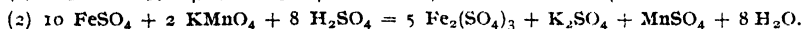
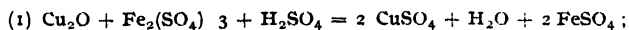
Solution D: solution exactly N/10 of permanganate of potash, so that 1 cc. of solution corresponds to 6.36 mgm. of copper.

The method of operating is very simple: 20 cc. of sugar solution obtained after clarifying the flour, (see page 545) are treated with 20 cc. of reducing solution (10 cc. of solution A + 10 cc. of solution B) and boiled for 3 minutes, after which the glass is removed from the flame and the cuprous oxide precipi-



tated (the solution left over after precipitation should remain blue) and filtered through a Gooch crucible or porous glass. After having filtered the blue liquid, the precipitate is placed on the filter and washed with water, until no traces of copper sulphate remain. The precipitate is then treated with 20 cc. of solution C (iron sulphate) and dissolved forming a greenish solution. The glass and the crucible are washed with distilled water and the whole is collected in a flask and titrated with the solution of permanganate of potash.

The re-actions take place as follows:—



The proportions of glucose and of maltose corresponding to the amounts of copper obtained are shown in the annexed tables and calculated for 100 gm. of flour.

*Acidity dosage.* — The acidity of newly milled flour is very small and varies between  $\text{Ph} = 5.8$  and  $\text{Ph} = 6.2$ . After a certain period of time following milling, acidity increases, particularly if the flour has a high degree of humidity and is kept in damp and insanitary surroundings. The determination of acidity in units of Ph should be carried out by means of a potentiometric apparatus.

In the laboratories for chemical tests of flours, the acidity is determined by the ordinary methods of titration; some adopt watery extracts of flour, others use for extraction alcohol at various concentrations. In our laboratory the following process is used: 10 gm. of flour are placed in a graduated closely stoppered tube containing 100 cc. of alcohol at  $50^\circ$  (the alcohol should be carefully neutralised before use); the whole is shaken for one hour, filtered and, with 50 cc.

*Table for calculating the glucose content.*

Glucose mgm	Copper mgm	Glucose mgm	Copper mgm	Glucose mgm	Copper mgm	Glucose mgm	Copper mgm	Glucose mgm	Copper mgm
10	20.4	29	57.2	18	91.8	67	124.7	86	155.6
11	22.4	30	59.1	49	93.6	68	126.4	87	157.2
12	24.3	31	60.9	50	95.4	69	128.1	88	158.8
13	26.3	32	62.8	51	97.1	70	129.8	89	160.4
14	28.3	33	64.6	52	98.9	71	131.4	90	162.0
15	30.2	34	66.5	53	100.6	72	133.1	91	163.6
16	32.2	35	68.3	54	102.3	73	134.7	92	165.2
17	34.2	36	70.1	55	104.1	74	136.3	93	166.7
18	36.2	37	72.0	56	105.8	75	137.9	94	168.3
19	38.1	38	73.8	57	107.6	76	139.6	95	169.8
20	40.1	39	75.7	58	109.3	77	141.2	96	171.4
21	42.0	40	77.5	59	111.1	78	142.8	97	173.1
22	43.9	41	79.3	60	112.8	79	144.5	98	174.6
23	45.8	42	81.1	61	114.5	80	146.1	99	176.2
24	47.7	43	82.9	62	116.2	81	147.7	100	177.8
25	49.6	44	84.7	63	117.9	82	149.3		
26	51.5	45	86.4	64	119.6	83	150.9		
27	53.4	46	88.2	65	121.3	84	152.5		
28	55.3	47	90.0	66	123.0	85	154.0		

Table for calculating the maltose content.

Maltose mgm	Copper mgm	Maltose mgm	Copper mgm	Maltose mgm	Copper mgm	Maltose mgm	Copper mgm	Maltose mgm	Copper mgm
10	11.2	29	32.2	48	52.8	67	73.3	86	93.7
11	12.3	30	33.3	49	53.9	68	74.3	87	94.8
12	13.4	31	34.4	50	55.0	69	75.4	88	95.8
13	14.5	32	35.5	51	56.1	70	76.5	89	96.9
14	15.6	33	36.5	52	57.1	71	77.6	90	98.0
15	16.7	34	37.6	53	58.2	72	78.6	91	99.0
16	17.8	35	38.7	54	59.3	73	79.7	92	100.1
17	18.9	36	39.8	55	60.3	74	80.8	93	101.1
18	20.0	37	40.9	56	61.4	75	81.8	94	102.2
19	21.1	38	41.9	57	62.5	76	82.9	95	103.2
20	22.2	39	43.0	58	63.5	77	84.0	96	104.2
21	23.3	40	44.1	59	64.6	78	85.1	97	105.3
22	24.4	41	45.2	60	65.7	79	86.1	98	106.3
23	25.5	42	46.3	61	66.8	80	87.2	99	107.4
24	26.6	43	47.4	62	67.9	81	88.3	100	108.4
25	27.7	44	48.5	63	68.9	82	89.4		
26	28.9	45	49.5	64	70.0	83	90.4		
27	30.0	46	50.6	65	71.1	84	91.5		
28	31.1	47	51.7	66	72.2	85	92.6		

of the filtrate, the acidity is determined with a solution of sodium hydrate or potassium N/20. The cc. of ordinary alkaline solution necessary for neutralising 100 gm. of flour in the dry state, express *the degree of acidity*

### (C) BIO-CHEMICAL METHODS.

These methods chiefly refer to the determination of the *diastasic strength of flours* and the fermentation strength of the yeast.

*Determination of the diastasic strength.* — This determination refers to the activity of the *amylase*, an enzyme which works in the starch and gradually transforms it into sugar

The presence of sugar is necessary for the life of the *saccharomycetes*, thus providing the possibility of obtaining a sufficient amount of carbon dioxide which is the basis for obtaining a proper leavening. The production of sugar while the flour is in store is not of great importance, but is sufficient for the needs of the *saccharomycetes*. The *amylase* slowly attacks the crude starch the activity of the enzymes becomes more marked during kneading and fermentation, when the *saccharification* of the starch is considerable.

For determining the *amylase* in cereals the RUMSEY method (13) is most commonly used, we have preferred to use the official process of the Moscow Research Institute for wheats and flours (1931), which varies slightly from the former method (14).

In a flask, capacity 100 cc., 10 gm. of flour are placed and left in a thermostat at 27° for 15 minutes, then 50 cc. of distilled water is added at a temperature of 27°. The mixture is left to stand for one hour, always at 27°, and is shaken every 15 minutes. Then 15 cc. of solution of copper sulphate (60 gm of CuSO<sub>4</sub>)

in 1000 cc.) is added; 15 cc. of solution of caustic sodium (12.5 gm of NaOH in 1000 cc. (15) and the whole is held at a temperature of 45 to 50° for 30 minutes. It is then left to cool and brought to volume, filtered through a dry filter and the amount of sugar in the filtrate is calculated according to the BERTRAND method. The diastasic strength is expressed in milligrammes of maltose per 10 gm of flour.

For determining the true diastasic strength, it is necessary to have knowledge of the sugars already present in the flour. This may be ascertained directly, proceeding as above, but taking care that nothing remains in suspension when the mixture is placed in the thermostat. When very accurate results are required, the Moscow Institute proceeds as follows: 10 gm of flour with 20 cc of alcohol at 78° contained in a flask, capacity 1000 cc., are first heated in a bainmarie for 10 minutes, the alcohol is evaporated completely, 20 cc. of distilled water is added and the preceding method is followed. The quantity of sugar found that corresponds with the sugar present in the flour should be subtracted from the first result.

Is the amylase of great importance as regards baking? Is there a relation between the quantity of amylase and the baking value? Certainly the amylase plays an important part in baking, though this should not be exaggerated. In practice it is found that hard wheat flours – excellent for making pastes, but unsuitable for baking – have a high diastasic strength superior to that of ordinary baking flours. In practice the diastasic strength of Italian wheats and flours has proved to be generally sufficient for baking purposes and in the contrary case it would be easy, with the addition of appropriate substances, to obtain as much as might be required. It should also be mentioned that, in baking, the high temperature causes appreciable quantities of hydro-alcoholic vapours to form, which, together with the gases produced by fermentation, exercise an action of considerable importance in the phenomena of bread making.

The above mentioned and similar methods cannot give very reliable results inasmuch as the determination is carried out, not with the dough, but with a suspension in which the enzymetic action is not comparable as the conditions are totally different.

It should be added that many writers still attribute great importance to the quantity of gas developed and determine the activity of the amylase indirectly, measuring the quantity of gas which develops in the dough when yeast is added. Such testing is very simple: the gas obtained in the dough, containing a given quantity of yeast (generally 1 to 2 %), is collected by means of ordinary volumenometers; or is determined by means of simple gas registering apparatus at constant pressure (16).

BRABENDER has constructed an apparatus, called a *Fermentograph*, based on the principle of the hydrostatic balance, with which is determined graphically the carbon dioxide developed by a given quantity of flour kneaded with yeast and salt (*Mehlprobleme*, 1932, Duisberg).

Undoubtedly a deficiency of gas – which ordinarily never occurs – has an adverse effect on successful baking; it is much more important to know the quantity of carbon dioxide that remains in the dough than the quantity developed. BAILEY and WEIGLEY, who in their experiments have used ordinary

graduated tubes for measuring the volume of the dough, have determined that the dough of strong flours lose less carbon dioxide than weak flours and, on the other hand, the more carbon dioxide is retained the greater the volume in dough. L. BORASIO has arrived at the same conclusions in his recent tests (17) In fact, the good quality of a flour depends on its capacity to retain the gases of fermentation.

*Determination of the fermentation strength of yeast.* — Up to the present, experiments have been limited to determining the fermentation strength by means of the HAYDUCK method. In this method 40 g. of sucrose are dissolved in water and the whole is brought to 400 cc.; 50 cc. of this solution is taken and, using a small mortar, 10 gm. of compressed yeast are added. The whole is put in a receptacle of 500 cc. closed with a cork and attached, by a rubber tube, to a volumenometer full of water saturated with sodium chloride so as to prevent the absorption of the carbon dioxide developed.

The determination is made in a bainmarie kept at 30° and yeast is considered good which develops 250 cc. of gas in 90 minutes.

Other writers suggest the use of a sugar solution for determining the gas developed in the dough obtained by adding water and given quantities of yeast, although the HAYDUCK method is more generally used.

#### (D) PHYSICO-CHEMICAL METHODS.

The most important physico-chemical determinations relate to: (1) the capacity for absorbing water; (2) the degree of hydration of the gluten; (3) the degree of extensibility of the gluten.

The *capacity of flour to absorb water* depends on its hydrophilous constituents and is generally determined by the baker. It is advisable always to employ the same operator so as to obtain congruent data.

In order to render this determination more scientifically accurate and less subjective, SWANSON and WORKING (18) introduced a method by which the water, left in a flour after centrifuging, is measured. The results obtained do not always correspond with reality; to obtain more accurate methods, it is necessary to employ apparatus designed for this purpose, among which should be named the electro-mechanical "Farinograph" of HANKÓCZY-BRABENDER and our "Elettroviscosigrafo", which registers graphically the consistency of a dough and therefore determines the degree of absorption of the flour.

In addition to these types of apparatus which function well and will be described later on, the degree of water absorption may be determined by purely mechanical means (19). The apparatus invented by us, called the "Consistenziatore", consists of a motor which drives a kneading machine, constructed for this purpose, by means of a couple of cogwheels with a worm screw. This screw, which turns on the axle of the motor in spiral grooves, is held in place by a tared spiral spring which functions as a shock absorber. To this is attached a lever which controls an index needle, varying according to the power developed by the kneading machine, and gives the exact consistency obtained. 150 gm. are used which are kneaded, first rapidly, adding a given

quantity of water (about 70 cc.) and then more slowly, until the standard consistency is obtained. The cc. used calculated for 100 gm. of flour give the degree of water absorption.

*Degree of hydration of the gluten.* — ARPIN (20) has introduced a process for determining this constant. The extracted gluten is dried by means of an apparatus invented by himself and called "L'Essoreuse". This consists of two cylinders of vulcanite which turn in opposite directions at a distance of 0.4 mm. apart. The gluten, after having been passed through 8 times, is weighed moist and then dried at 105° and the difference in weight gives the degree of hydration which is calculated as a percentage.

*Determination of the extensibility of the gluten.* — BERLINER and KOOPMANN (21) have suggested a method, based on extensibility, for estimating the quality of a flour, which will now be briefly described: 2.5 gm. of gluten, extracted with a solution of NaCl at 2 %, are divided into 70 small pieces and left for two hours and a half in a special patented flask, with 250 cc. of lactic acid N/50 at a temperature of 27°. After this period the volume is read off directly from the neck of the flask. This volume in cc. is divided by 2.5 and the result obtained is called the extensibility index and varies between 4 and 29.

BERLINER has recently modified his process, working only with 1 gm. of moist gluten and 100 cc of solution (D. R. P. 525594).

Apart from the difficulty of this process (due to the fact that it is almost impossible to divide the gluten into so many small pieces of equal weight), the method may give data that are fairly in agreement (particularly within the extreme limits), but it has the disadvantage of limiting the investigation to the extensibility of the gluten, an important but not the only factor for estimating the baking strength of flour, since, if substitutes are added, it is impossible to indicate with such data the quality of a mixed flour.

The data which most closely approach true facts, are those obtained by mechanical methods.

#### (E) Mechanical Methods.

Mechanical methods may be divided into two categories: (1) methods based on examination of the gluten — (2) methods based on examination of the dough.

Among the instruments used for investigations of the quality of the gluten, mention should be made of the BOLLAND apparatus (22), known as the "Aleurometer", now in use, and the "Gluten Tester" of LIEBERMANN (1900), both very inexact instruments based on the measurement of the expansion of the gluten by means of heat.

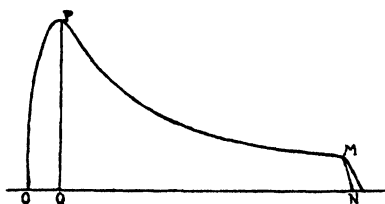
#### HANKÓCZY Farinometer (1910).

The Hungarian scientist, HANKÓCZY (23) was the first, to invent, in 1905, an apparatus for measuring the elasticity of gluten by means of the action of air pressure, provided by a column of mercury, on a thin layer of that substance. This apparatus was afterwards improved and introduced in 1910 for determining the physical properties of dough.

At the present time it is preferred to operate on the dough rather than on the gluten as, in addition to the difficulties of extraction, gluten extract has not the same characteristics as the gluten still contained in the dough, while the physical characteristics of dough, though for the most part dependent on the gluten, are also dependent on the presence of other component elements, (starch, sugars, dextrin, protein, cellulose, etc.), all of which contribute towards the suitability or otherwise of flour for baking purposes.

Numerous kinds of apparatus have been invented, the two most important being the CHOPIN "Extensimeter" and the BORASIO-DE REGE "Pneumodynamometer".

FIG. 1.  
Graph obtained  
with the "Extensimeter".



The composition of the dough, the process of separation, the duration of kneading and of the rest period and the other manipulations should always be carried out according to the same system.

The CHOPIN Extensimeter is extensively employed and curves are obtained with it which have the following characteristics —

P = tenacity, calculated by the maximum pressure registered: PQ;

G = square root of the volume of the bubble at the moment of breaking;

W = average working effect divided by the weight of the layer of dough.

CHOPIN writes that, for a flour to satisfy purchasers from the point of view of its plastic quality, the raising effect W should be as near as possible to a determined value corresponding to a given region (quality of the wheat used in that region and the system of baking employed). Thus for Paris this value is fixed as  $W = 100$ .

CHOPIN is of opinion that such value should not fall below a determined limit, e. g., below 20 for Paris.

The apparatus works under pressure and the results are fairly good, though the speed of the escape of air is rapid and irregular, for which reason the curve has characteristics that are not absolutely exact. The determination, that is made on the basis of the volume of water reached, as read off by the operator on the graduated column of the apparatus, is also subject to error on account of the rapidity of the test.

The "Pneumodynamometer" invented by BORASIO and DE REGE (24) is completely automatic and very accurate.

The outstanding merits differentiating the "Pneumodynamometer" from other similar apparatus, increase its practical and scientific value and depend on the fact that, in addition to its advantages and facility of a specially devised automatic device, the quantity of air is kept strictly constant and is not influenced by the different resistances of doughs made of various flours.

The curve expresses the force exercised by the air in modifying the form of the layer of dough and the area, enclosed in the curve, is called the *strength of the flour*.



FIG. 2. — Typical graphs obtained by the "Pneumodynamometer".

From the graph traced by the "Pneumodynamometer" important indication may be obtained, allowing the quality of a flour to be estimated most completely (25). These indications are the following:—

- (1) *Tenacity*, represented by the maximum ordinate of the curve which is given by the segment B E, indicating the pressure in mm. of mercury.
- (2) *Elasticity*, volume in cc. of the bubble at point B.
- (3) *Extensibility*, volume in cc. of the bubble at the moment of breaking.
- (4) *Ordinate of breaking*, represented by the segment D measured in mm. of mercury.
- (5) *Relation Extensibility: Elasticity*.
- (6) *Strength of the flour*, area ABCD in cc., enclosed by the curve.
- (7) *Working effect* = *extensibility* × *flour strength*.

The most important data are *extensibility* and *strength*; it should however be noted that flours frequently occur with slight *resistance capacity* and great *extensibility*, or on the other hand, with great *resistance capacity*, but deficient in *extensibility*.

The *working effect*, equivalent to the product of *strength* multiplied by *extensibility*, is in proportion to the modifying effect produced by gases acting on the dough, and includes these characteristics, so that if one or the other is absent or even is not very marked, the effect will be nil or slight, and in this way the quality of a flour may be judged.

Taking the values of the index of working effect as a basis, the writers have fixed limiting values for this index, thus giving the following classification of flours:—

Inferior . . . . .	500 - 1,500
Mediocre . . . . .	1,500 - 3,000
Good . . . . .	3,000 - 4,500
Superior . . . . .	above 4,500

The CHOPIN apparatus and the Pneumodynamometer register the strength employed in dilatation and allow the modifying activity in the dough to be ascertained. This work activity is the most interesting and important from the point of view of baking as it is that which operates in the phenomena of fermentation and baking.

*Graphs obtained  
with the  
"Pneumodynamometer"*

FIG 3

First class  
baking flour.

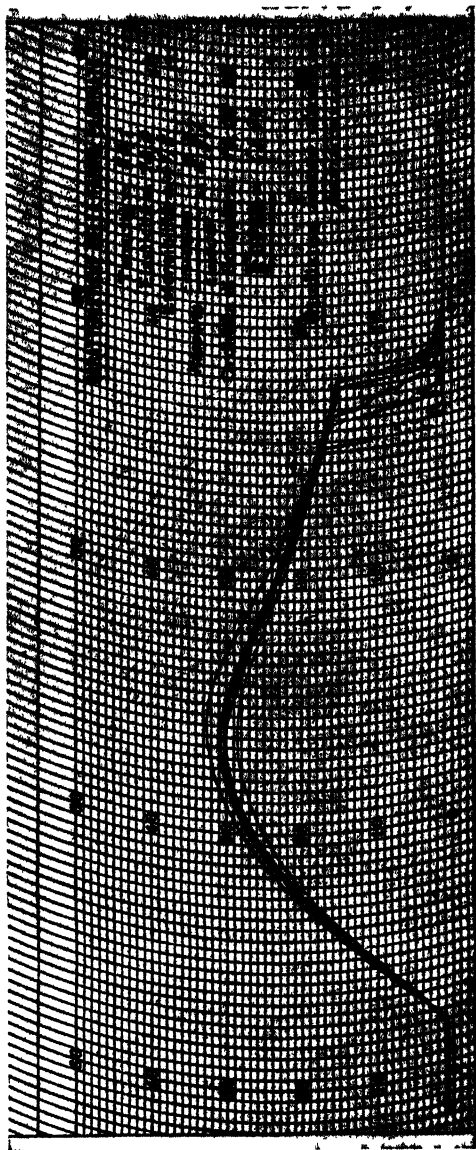
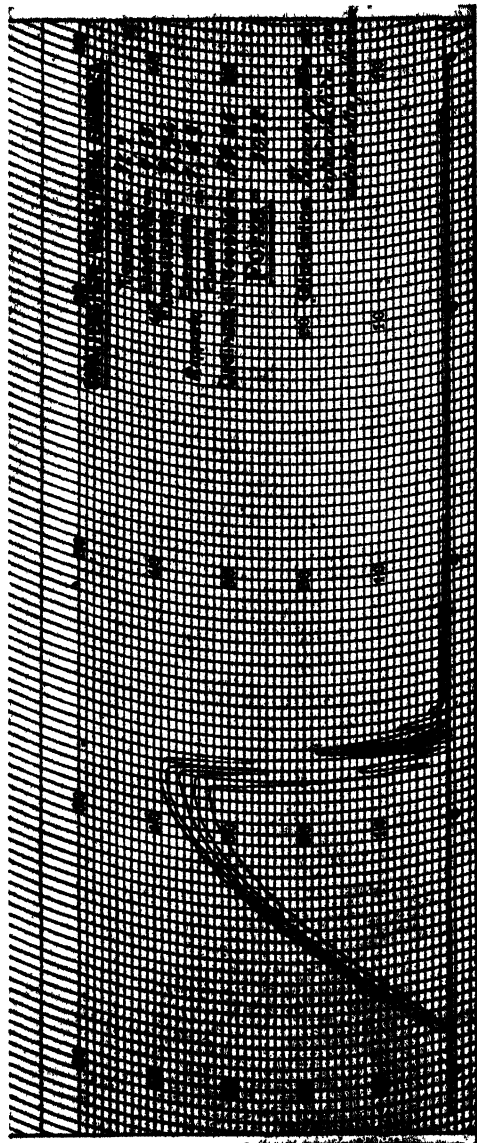


FIG 4

Flour without extensibility,  
unsuitable  
for baking purposes





It certainly cannot be stated that there is any absolute agreement between the curves and the baking tests on account of the many complex phenomena, chemical, bio-chemical and physico-chemical, which arise during the process of baking; at the same time it should be recognised that these instruments provide the most accurate method of estimating the quality of a flour. Their precision gives them a special value, both from the practical and scientific points of view, and makes it possible to study many problems regarding the properties of dough. Among these, one of the most important is that concerning the *strengthening* of flour, i. e., a knowledge of the quantity of strong flour required in order to strengthen a weak flour. This problem may be solved by a simple calculation and, if, for obvious reasons due to the influence that certain components in the flour exercise in the mixture, accurate results are not obtained, they are at least approximately correct and provide a satisfactory criterion for estimating the percentage required (See L. BORASIO, *Studi sulle farine di grano*, Vercelli, 1934).

(F) METHODS BASED ON THE MEASUREMENT OF THE FORCE REQUIRED  
FOR KNEADING.

If the work of a kneader is observed, it will be seen that the energy output required in kneading differs according to the quality of the flour. On this principle are based the Farinograph of HANKÓCZY and BRABENDER, the Electroviscosigraph in our laboratory, the dynamometric kneader of FEYTE and POTEL and the apparatus devised by SWANSON and WORKING.

In 1912 HANKÓCZY invented the Farinograph, which was improved between 1927 and 1930 and brought to its present form in collaboration with BRABENDER. This apparatus, which works with an electro-dynamometer, registers under the form of a curve the physical characteristics of the dough and also determines the capacity for water absorption in the flour. This factor is determined in a preliminary test by adding to the flour the quantity of water necessary for obtaining a dough of a previously established consistency. According to BRABENDER, this determination is carried to a high degree of precision (0.2 %); a degree of sensitiveness so high actually does not exist.

Investigations on the baking quality of the flour are carried out on 300 gm of flour at constant consistency, working, according to HANKÓCZY, for 15 minutes.

Many factors may be obtained from the graph, though HANKÓCZY considers two only, namely:—

- (1) *the duration of rising in the dough*, calculated in minutes from the beginning of the curve to the moment at which the curve no longer ascends;
- (2) *weakening or fall in consistency* expressed in cm<sup>2</sup>, which is determined by measuring with a planimetre the area comprised between the ordinates corresponding on the one hand to complete rising and on the other to the ordinate of the 15th minute of kneading.

By the use of these methods, HANKÓCZY suggests a classification based on the *duration of kneading* and the *fall in consistency* (26).

Does, however, HANKÓCZY's classification correspond with the baking test and is there a relation between the curve obtained and the experimental tests?

It cannot be denied that a relation does exist between the course of the curve and the baking value, a relation which is sometimes uncertain in respect of certain flours and particularly in mixtures containing substances with a high power of absorption

HANKÓCZY attributes this to the fact that the dough, while having a satisfactory consistency, has not sufficient elasticity and extensibility to retain the gases of fermentation and the bread obtained is therefore relatively small in volume.

*Diagrams obtained with the Farinograph*

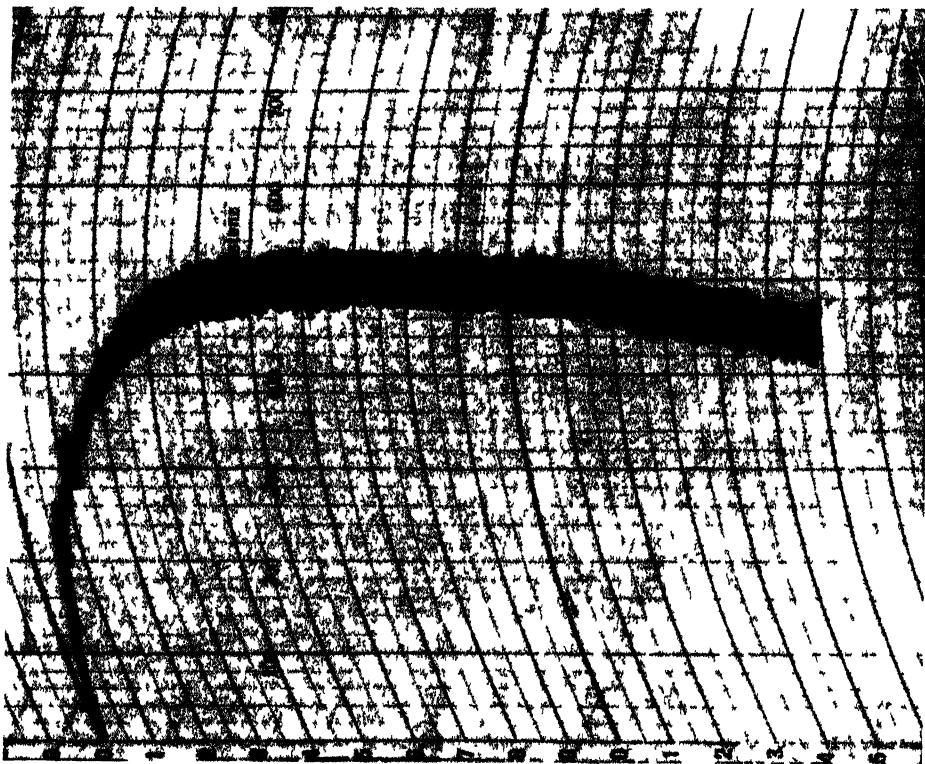


FIG 5 — Flour from wheat of average strength

\* \* \*

Similar results are obtained with the dynamometer of FEYTE and POTEL, with the "Elettroviscosigrafo", and with the apparatus of SWANSON and WORKING (27). The following facts have been determined by means of the first instrument —

(a) that the effort required in kneading a flour is proportional to the duration of the process,

(b) that operating under the same conditions as for testing with the Extensimeter of CHOPIN, a proportional relation has been observed between W (work) and the force required for kneading.

Using the "Elettroviscosigrafo", which the writer has devised for measuring the output of effort in kneading by means of a registering wattmetre, it has been possible to determine:—

- (1) that the absorption of force varies according to the flours;
- (2) that there is no relation between this force and the baking value, as the relation between the baking value, and the curves traced at equal consistencies is not invariable;
- (3) that the absorption capacity is not a function of the baking quality;

*Diagrams obtained with the Farinograph.*

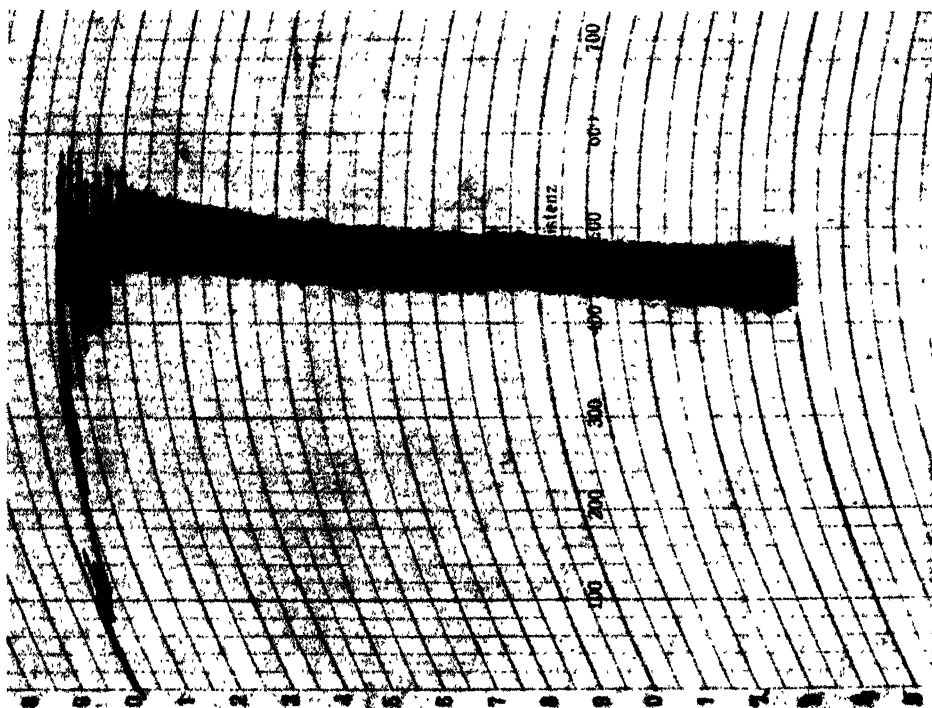


FIG. 6. — Mixed flour obtained by mixing 30 % rice flour with 70 % weak flour.

- (4) that as colloidal substances are involved, many factors have a considerable influence on the behaviour of the curves, such as the type of kneader employed, its speed, the temperature, the chemical substances added, etc.

All these instruments are based on the principle of the degree of *working under pressure*. In our opinion, this *working* is not quite comparable to that which the dough undergoes during fermentation and baking. In fact, it is true that in mixtures containing substances with a high capacity for absorption (rice, fecula, carob, clay, gesso, etc.), the working under pressure and the consistency of the paste increase considerably and register excellent curves from every point of view, but the practical results are not satisfactory, as they do not correspond to the baking tests.

(continued).

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*Bibliographical and Explanatory notes.*

- (1) In order to facilitate the colour test special apparatus with photo-electric cells have recently been introduced which determine the light reflected by the flour.
- (2) KENT JONES, *Modern Cereal Chemistry*, 1927, Liverpool.
- (3) KÜRSCHNER & HANACK, in *Zeitschrift für Untersuchung der Lebensmittel*, Berlin 1930, 59.
- (4) BELLUCCI, in *Annali di Chimica applicata*, Roma 1932, 22.
- (5) MAROTTA & VERCILLO, *Ibidem*, 1932, 22.
- (6) BERLINER & KOOPMANN, in *Mitteilungen über Lebensmitteluntersuchung*, 1929, 20.
- (7) DILL & ALBERG, in *Zeitschrift für Untersuchung der Lebensmittel*, Berlin 1930, 59.
- (8) The standard solution is obtained thus: a certain quantity of magnesium free sodium chloride at 2 % is prepared and used as a solvent, two concentrated solutions are prepared (for example, 4 % of anhydrous salt); one of bi-sodium phosphate and the other of mono-sodium phosphate and are mixed in such proportions as to obtain  $\text{Ph} = 6.8$  (bromo-thymol blue indicator). This solution is diluted with the solution of sodium chloride previously prepared so as to obtain a concentration 0.1 % of anhydrous salt. When used the solution should be kept at 18°.
- (9) SNYDER, in *Journal of the Chemical Society*, 1905, p. 1068.
- (10) FLEURENT, in *Comptes rendus de l'Académie des Sciences*, Paris 1896, tome 123, p. 755.
- (11) BLISH & SANDSTEDT, in: *Cereal Chemistry* 1925, 2, 1927, 4 — *Journal of the Association of Official Agricultural Chemists*, Menasha (Wisconsin) 1926, 9, p. 417.
- (12) BERTRAND, in *Journal de la Société de Chimie biologique*, Paris 1906, 35, p. 1285.
- (13) RUMSEY, in *American Institute of Baking Bulletin*, 1922
- (14) The difference between the Russian method and that of RUMSEY is that: in the latter the clarification is carried out with the aid of 3 cc. of solution of sodium tungstate at 15 % and 5 drops of solution of thymol blue at 0.04 %, sulphuric acid being then added drop by drop until a rose colour is obtained. The acidity of the solution may be caused by the inversion of small quantities of the sucrose present in the flour, which brings about an increase in the maltose content. For this reason the Russian method, which works under alkaline conditions, gives more precise data.
- (15) Clarification may also be carried out using 15 to 20 cc. of solution of zinc sulphate, at 4.5 %, solution of sodium hydroxide at 4 %, the whole being heated at 45 to 50° for 30 minutes.
- (16) MARKLEY & BAILEY, An automatic method for measuring gas production and expansion in doughs. — *Cereal Chemistry*, 1932, 9.  
ROY IRVIN, An improved apparatus for measuring gas production and expansion in doughs. — *Ibidem*, 1935, 2.
- (17) In order to obtain data which correspond more closely with reality, BORASIO carried out fermentation tests operating on small loaves of 100 gm. of flour which were left to ferment freely without any external influence, so as to ascertain their true capacity for expansion and growth. The flour was kneaded with 2 % of ordinary compressed yeast of regular consistency; the volume of the loaf before fermentation is carried out in a graduated tube with the addition of water; the quantity of gas developed is determined with ordinary volumenometers; the volume reached by the loaf is measured approximately with volumenometers which function with the displacement of liquid. The baking ovens are kept at 30°. (See L. BORASIO, *Studi sulle farine di grano*, Vercelli, 1934).

- (18) SWANSON & WORKING, in *Cereal Chemistry*, 1933, 10.  
 (19) See for the apparatus invented by these writers, *Ibidem*, 1933, 10.  
 (20) ARPIN, *Farines, féculés et amidons*, Paris 1913.  
 (21) BERLINER & KOOPMANN, in *Zeitschrift für das gesamte Mühlewesen*, 1929  
 (22) BOLAND, in *Revue des Services de l'Intendance*, Paris 1888.  
 (23) HANKÓCZY, in *Molnárak Lapja*, Budapest 1905.  
 (24) BORASIO L. & DE REGE F., in *Giornale di Riscicoltura*, Vercelli 1932 et 1933.  
 (25) ID, ID, *Istruzioni per l'impiego dell'apparecchio*, Vercelli 1934.  
 (26) Scale showing the numerical values of the curves, as adopted by HANKÓCZY—

Length of kneading process		Points	Fall in consistency		Points
10 minutes	. . . . .	100	0 cm	. . . . .	100
1 minute	. . . . .	1	60 cm?	. . . . .	0

The two *points*, found for every flour, are added together, divided by 2 and the result gives the numerical value. HANKÓCZY, for studying exhaustively the properties of a flour, determined with the Farinograph the consistency of a dough containing salt and yeast in given percentages and kneading took place alternating with periods of fermentation. The curve obtained was compared with that of the development of the CO<sub>2</sub> obtained with the Fermentograph. According to the writer the data obtained with the Farinograph are thus integrated and more accurate results are obtained. (See *Mehlprobleme*, 1932, Duisburg).

- (27) The SWANSON-WORKING apparatus is merely a small standard kneader to which is attached a registering wattmeter or a dynamometer apparatus. The investigations on the determination of the degree of water absorption have given satisfactory results particularly with the completely mechanical apparatus

## MISCELLANEOUS INFORMATION

### General Agronomy.

INFLUENCE OF MINERAL FERTILISER, ESPECIALLY POTASSIC, ON THE PRODUCTION AND BOTANICAL COMPOSITION OF GRASSLANDS AND PASTURES IN SPAIN. — In the periodical *Die Ernährung der Pflanze* (Berlin, 1 November 1935) Luis SAEZ, Ing. Agr., gives some information of interest on this subject, which may be summarised as follows:

There are in Spain 1,126,569 hectares of meadow, including 640,343 of mowing grass, and 486,226 of pasturage, mainly occurring in the North-West of the Iberian Peninsula, in the regions especially engaged in stock breeding. The average production of hay on the chief zones of Spanish grasslands varies between 3,500 kg. in the Asturias and 6,000 kg. in the Orense. Some years ago, stable manure was still being used almost exclusively for meadows and pastures, but chemical fertilisers are now being applied in increasing proportions. As the result of numerous trials, it has been possible to show that the production of meadows and pastures is considerably increased by phospho-potassic manuring. It is also noted that potash used alone results in an increase of from 19 to 34 per cent.

The writer gives an account of a series of trials made in the Asturias for determining the influence of phospho-potassic manuring on the botanical composition of meadows. From 500 to 700 kg. of superphosphate and 200 kg. of potassium chloride were applied per hectare. The results showed that, with such an application, there

was a considerable increase in the proportion of good forage species. The following table shows the results of the trial made at Collera-Piles (Asturias):

	No fertiliser	With fertiliser
Gramineae . . . . .	27.34 %	17.41 %
Leguminosae . . . . .	17.08 %	57.15 %
Plantaginaceae . . . . .	22.50 %	14.21 %
Plants of less value . . . . .	20.19 %	6.09 %
Plants of no value . . . . .	12.07 %	4.78 %
Ranunculaceae . . . . .	0.82 %	0.36 %

## Rural Engineering.

SECOND INTERNATIONAL CONGRESS OF RURAL ENGINEERING, MADRID, 26 SEPTEMBER TO 3 OCTOBER 1935. — This Congress was held, five years after the first, under the presidency of Prof. BOUCKAERT, Rector of the State Agronomic Institute at Gembloux (Belgium), and may be claimed to have been an important occasion marked with signal success. The preparations for the Congress were undertaken by an organising Committee and in particular by Prof. E. ARANDA HEREDIA, the Secretary General of the Congress, and the smooth working of all the arrangements was thereby ensured. The increasing interest felt in this international meeting was clearly shown by the large number of foreign countries taking part. Delegates of 22 countries were present and more than 350 members of the Congress were registered contributing in all some 50 communications.

The communications which reached the Committee before the opening of the Congress are published in a carefully prepared volume of more than 500 pages, edited by the Organising Committee in collaboration with the Spanish Ministry of Agriculture. Each of the communications so published appears in the language of the writer (English, French, German, Italian, Spanish), and at the end of each there is a summary in French.

The Congress, which was the occasion of important discussions and exchanges of views, included four Sections.

Section I, under the presidency of Prof. DISERENS, dealt with *Soil Science, Agricultural Hydraulics and Planning of the Rural Estate*. The following communications were presented

- H. LAFFERRÈRE, *The apparent capacity for resistance of soils as a function of their hydrodynamic characters.*
- J. M. MARCHESE Y SOCIATS, *Geoelectric methods in prospecting for subterranean waters.*
- W. SIBIRSKY (Leningrad), *A rapid method for the determination of soil humidity.*
- L. RIGOTARD, *The sub-soil in agriculture, its development, treatment, and utilisation; the present need for devoting attention to the sub-soil*
- G. CASTAÑON ALBERTO, *Relation between the capacity of soils for the retention of water, and the quantities of water assigned for irrigation purposes.*
- F. DISEKENS (Zurich), *Method for determining on the spot the permeability of soils.*
- G. STEFANELLI (Pisa), *Energy required for the pulverisation of liquids, with special reference to the sprinkling apparatus of installations for shower irrigation.*
- STAUBER (Zurich), *Characteristic types of installation for water supply, in Switzerland.*
- H. LAFFERRÈRE, *Determination of the quality of earthenware drain pipes by the study of the variation, expressed in function of the time, of the resistivity of water placed in contact with them.*
- F. RAMSER, *Influence of the form and dimensions of the joints of drain pipes and of their overlap on the drainage results.*

The following resolutions were on these reports formulated at the close of the discussions and were subsequently approved by the final meeting of the Congress.

The working of practical methods for the determination of properties of soils in their natural state being already assured, the Congress recommends the employment for the determination of the physical properties of the soil, units of measurement corresponding to the known physical characters and to the technical units.

The bearing of these properties on the circulation of subterranean water is already made clear by recent methods of determining soil permeability, these render it possible to measure with a fair degree of exactness the outflow of sub-soil water, as well as the probable effect of drainage works by means of channels and drains.

The new geo-electric methods of prospecting the sub-soil, and the methods determining the apparent resistivity of soils to the electric current in function of its hydrodynamic characteristics, are means of investigation of an undeniable practical utility, and their use is recommended.

The proved value of a determination as exact as possible of the quantity of water in the subterranean layers and in the outflow of irrigation canals drains and sewers, makes it possible to recommend the employment of mathematical ratios and of coefficients of rugosity in such a way as to correspond effectively to the observed conditions of circulation, to the nature of the materials and to the state of preservation of channels and conduits.

The Congress suggests in addition that the determination, by the methods mentioned, of soil and sub-soil capacity for surface and subterranean filtration should precede the drainage and irrigation works.

The intensity of the drainage and that of the irrigation should be determined, taking into account soil properties and cultivation requirements.

The volume of water passing through the drain pipes may be determined, taking into account the soil properties and the intensity of the drainage action relatively to the effects of rain, previously ascertained.

The effectiveness and duration of the works is greatly influenced by the quality of the materials used for drainage and irrigation work. A previous study is recommended of the corrosive action of soils on all constructions in concrete, as well as a study of the measures of precaution necessary.

Standards for the manufacture of earthenware pipes are recommended taking as basis properties easy to determine at the time of manufacture such as conditions of form and resistance, lime content of the clays and resistance to the destructive action of water.

For the manufacture of conduits in earthenware or in concrete, it is proposed to submit to the next International Congress of Rural Engineering standards the employment of which may be recommended on an international scale.

Finally, taking into account the area occupied by irrigation systems in certain countries, the Congress recommends that at the next International Congress of Rural Engineering detailed studies on irrigation shall be submitted. It will then be possible to assign the work of Section I as follows:

- (1) Problems relating to subterranean hydrodynamics and to agricultural hydrodynamics.
- (2) Irrigation.
- (3) Sanitary measures and drainage.
- (4) Consolidation of farm holdings and problems relating to land settlement.

Section II, that of *Rural Buildings*, examined, under the presidency of Prof. GROSS, the following questions:

G. CASTAÑON ALBERTO, *Modern planning of piggeries*,

OFFICE DES CONSTRUCTIONS RURALES (Brougg), *Modern installations of Swiss cow sheds*.

- E. R. GROSS, *Sweet potato storage in New Jersey.*
- M. R. MENARD, *Utilisation of steel in agriculture.*
- C. VALDES RUIZ, *The problem of inhabitants evicted and expropriated in consequence of large hydraulic works.*
- L. SANZ Y SANZ, *Home colonisation as the means of solution of the forced expropriations due to the construction of hydraulic works.*
- M. BAESCHLIN, *Relations between agricultural improvements and home colonisation in Switzerland.*

Special stress was laid in the resolutions of Section II on the development of home colonisation, in the regions where there is no large population, by means of State subsidies and not by means of expropriation of lands and buildings.

Expression was also given to the views accepted by the Section as to the construction of buildings and modern installations of cowsheds and piggeries.

Sections III: *Farm Mechanics, Agricultural Application of Electricity.* President: Prof. SOURISSEAU.

From the nature of the communications and the 33 reports, this Section may be considered as the most important of the Congress. The following reports may be mentioned:

- J. H. SOURISSEAU, *On the determination of the physico-mechanical state of a soil at a given moment.*
- F. D. SCHMITZ, *Situation and problems of the mechanics of arable soil.*
- T. V. BARANAO, *Resistance to the action of the share and adherence reaction in ploughing trials.*
- A. KARAZOV (Sofia), *Correlation between the pulling force and the rapidity of movement during the action of the spring teeth of different constructions.*
- A. LEPPIKS, *The shock process in the action of harrows and cultivators with flexible teeth.*
- I. PALEOLOGUE, *The dynamic hectare as measure of the work of machines for mechanical cultivation.*
- G. SANTINI (Portici), *A new method for direct measurement of the losses of mechanical energy of the propelling parts of farm tractors.*
- E. G. MAC KIBBEN, *Rigid rim wheels on rough roads.*
- G. W. MAC CUEN and E. A. SILVER, *Summary of comparative studies of low pressure pneumatic tyres for farm tractors and farm equipment in the United States.*
- V. R. RUEGGER, *Comparisons between animal traction and mechanical traction on narrow gauge lines for rural engineering works.*
- J. BALZARS, *Number of teams necessary for transport of loads.*
- H. E. MURDOCK, *Measuring apparatus for the testing of agricultural machinery, used by the Montana Agricultural Experiment Station (United States).*
- A. LEPPIKS, *Light dynamometer for field trials.*
- H. E. MURDOCK, *Test of farm tractors under field conditions.*
- I. J. FLETCHER, *Diesel tractor development in the United States.*
- A. P. YERKES, *Development of the general purpose tractor and its adaptation to agriculture.*
- A. A. STONE, *Garden tractors in the United States.*
- K. VORMFELDE, *The problem of the tractor in Germany.*
- ADAMS, *The small harvester-thresher development and its adaptation for the harvesting of various crops.*
- K. VORMFELDE, *The problem of the harvester-thresher for Central Europe.*
- J. BROWNLEE DAVIDSON, *Improvement of farm machines.*
- H. J. HOPFEN, *Mechanisation of Agriculture and Wheat growing in the world.*
- J. PALEOLOGUE, *The conditions of mechanisation of agriculture in Greece and the activity of the State Service of mechanised cultivation.*



H. VON SYBEL and W. HAMMER, *Artificial drying of forage crops in German agriculture*  
W. ROSAM, *Simplified process for drying of young lucerne.*

CH. BOUDRY, *Co-operative grape pressing and wine making societies in Switzerland.*

V. R. RUEGGER, *Notes on Alpine aerial transporters.*

MANZO, *Rural electrification.*

J. ENGELHARD, *The place of electricity in the renewal of rural life.*

I. P. BLAUSER, *Sterilising soil with electricity by the resistance method.*

There was a keen discussion in connection with the paper of Prof. MAC CUEN on trials made with tractors fitted with low pressure tyres. The speaker maintained that a correlation exists between the possibility of employing pneumatic tyres and that of satisfactory working of the soil, at least in United States conditions. If the soil conditions militate against the use of pneumatic tyres, they will also be unfavourable to satisfactory cultivation operations. Prof. DENHAM objected that: under the climatic conditions of Great Britain, with exclusive use of pneumatic tyres the working of the soil was frequently hindered; from personal observation he was convinced that, as at present supplied, pneumatic tyres could not be recommended as replacing cogged wheels for tractors.

After other discussions all resolutions submitted, and some amendments, were approved as follows:

The Congress proposes to collect all the important results already obtained in respect to arable soil, and to publish on the subject a documentation of international value.

It is of opinion that methods of investigation and experiment should be unified, and that a closer collaboration should be instituted between representatives of the mechanisation of farming and those of soil science, and in particular between their international associations (C. I. G. R. and A. I. S. S.).

The Congress, considering that measures taken for expenditure of mechanical energy in order to effect, with a given machine, a particular type of soil working, are of value only if the physico-mechanical condition of the soil is first determined with precision, recommends that:

The professors of Farm Mechanisation and of Rural Engineering, and the Directors of Agricultural Laboratories and Stations should study the methods and the types of apparatus described in the reports submitted to the Congress, with the object of discovering, in accordance with the results of their experiments, the units which may be universally adopted.

In respect of the dynamic study of tractors, the Agr. Engineering Laboratories should consider as basic factor, for the estimation of the efficiency of a tractor, the measurement of the power transmitted to the axles of the driving wheels.

In view of the fact that electricity constitutes one of the most effective means of improving conditions of work on farms, the Congress expresses the desire to see as rapid a development as possible of rural electrification.

The Congress further recommended that, in view of the importance of electricity for the amenities of rural life, an organisation should be set up with the function of collecting the relevant documentation.

The Congress further urged the carrying out of systematic investigations for the study of the influence of electricity on plants, centralising all information in a specially formed organisation.

Section IV: *Scientific Organisation of Farm Work.* President: Prof. MICHELI.  
The communications presented were as follows:

F. GUTIERREZ SOTO, *Scientific organisation of labour in agriculture.*

- R. JAEGER, *Contribution to the methods of estimating the value of holdings in the case of consolidation, especially in respect of the effect of the distance between the farm homestead and the points at which work is carried out.*
- F. INEICHEN, *Increasing the return from labour on the small holding.*
- F. INEICHEN, *Wage fixing in accordance with the labour return.*
- J. S. MOLLOFF and G. D. KALAPTCHIEFF, *Report on the standards of Agricultural work in the clayey lands of the district of Sofia.*
- D. MARTIN SANZ, *Establishment of standards for agricultural work.*
- B. ILIEFF, *Determination of the fatigue set up by the different types of manual farm work.*

The conclusions of this Section are as follows:

The Congress proposes that, for Research Centres, for comparative studies on the various methods of calculating wages in agriculture and for the determination and establishment of work standards, the basis should be the output and the fatigue of the worker

The Congress also recognised the necessity of placing these questions on the agenda of the next Congress and of inviting specialists to give their collaboration by continuing their researches.

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During and after the Congress, excursions and visits of great interest were made, in the neighbourhood of Madrid. In the course of these the Organising Committee took the opportunity to draw the attention of Congress members to the progress made in Spain in the field of Rural Engineering. The irrigated belts of the Lower valley of the Guadalquivir, the irrigation works of the highlands of Aragon, the Arguis barrage were all visited, and an idea was gained of the extent of the work accomplished in Spain with the object of developing irrigation. Of special interest were the visits to the Santiponce Tobacco Experimental Centre and to the Seville Experimental Cotton-growing Institute.

One of the most interesting of the visits was that made to the National Agronomic Institute at La Moncloa. The striking array of farm machines, the numerous laboratories for motor trials, for machines and hydraulic plant form fresh proof of the great importance attached in Spain to rural engineering and also of the work accomplished in this field.

The Hydraulic Laboratory, planned by the Director of the Institute, Prof. BENAI-GES, presents a conception of engineering previously unknown on other countries.

Great interest also to the trials made in the Station for testing farm machines in regard to the use of olive oils for lubrication of motors. These trials were carried on under the direction of M. Velasquez, who also displayed the improvements made in his gas generator facilitating the use of heavy oils in the place of petrol in gas. Attention has been drawn in this Review from their initiation to these trials of M. Velasquez and those relating to the "Catalex" carburetter; it is now shown by this engineer that it is not a catalytic action, but rather the increase of the heated surface in contact with the carburant which decomposes the heavy oil in the carburetter. Hence his new carburetter increases the surface of contact not, as before, by means of incandescent charcoal, but by helicoid metallic flanges which are made to rotate very rapidly by injection of the carburant, with the result that a close contact is effected between the heavy oil to be decomposed and the walls of the carburetter.

The Congress members were able also to visit the Museum of farm machines attached to the Agronomic Institute, where may be seen the thresher SCHLAYER-HELIAS with its latest improvements. Mention was made of this machine in the *International Review of Agricultural Science and Practice*, 1929, No. 4. The present

type has been improved and may be considered now as perfected; it has a single axis, placed very low so as to lower the centre of gravity of the machine. In place of the flail there are, round the central axis, a certain number of beating and lacera-ting arms arranged in a spiral, intended to thresh the cereals and to chop the straw afterwards. The other part of the machine includes a riddle through which the grains pass and fall into a funnel and thence into an elevator which passes them on to the cleaning apparatus. The percentage of broken grains is negligible if the thresher is always well supplied. No regulating is needed which greatly simplifies the work with the machine. The different parts are easily accessible.

The machine is coupled up with a motor of about 30 HP. The motive power required to thresh and clean the grains is much less than that of ordinary threshers. The machine might be of great value in southern countries, where chopped straw is used as stock feed.

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Owing to the excellent organisation of the Congress, the members were able to gain a very clear idea, as already noted, of the present position of research and of progress in the field of Rural Engineering. For future Congresses it would be of great value if, along with the various reports on the position of research and experiment, there was a clear statement made on each occasion of purely international questions for discussion in view of reaching more positive conclusions and recommendations. Such questions include: unification of methods of machine trials, organisation of trials of certain machines, in different countries, in accordance with uniform criteria principles, the organisation of uniform enquiries on experiments made with machines under differing technical and economic conditions, standardisation, questions of machinery statistics in the different countries. In this way each Congress might be made to lead on to the next, with constantly increasing importance.

H. J. HOPFEN.

## Agricultural Press.

NEW AGRICULTURAL REVIEW IN URUGUAY. — The Phytotechnical Institute and the Seed production Station "La Estanzuela", the main purpose of which is the technical and economic study of the principal crops best suited to the soil and ecological conditions of Uruguay, has initiated the publication of a useful review entitled "Archivo Fitotécnico del Uruguay". This is edited by Dr. Albert BOERGER, Director of the Institute "La Estanzuela", with the collaboration of the technical staff.

This review will make known the technical activities and the scientific work carried on on the trial fields and in the laboratoires of one of the most important agricultural centres of Uruguay; in consequence of the importance of the subjects treated, the part played by this new periodical will be that of a scientific exchange with institutions of a similar character. In order to facilitate in the non-Latin countries the comprehension of the problems studied, each article is to be accompanied by a summary in another language, by preference English or German.

The first number of this Review contains a complete bibliography with reference to the most important books, brochures, pamphlets, articles, communications, etc. published by the technical staff of "La Estanzuela" since 1912. There are included 170 works in all reflecting original activities in the sphere of phytotechnical investigations and subjects in connection.

The following are the articles published *in-extenso* in the first number

BOERGER A. (director), *La Genética en su relación con el problema de las « Plantas más eficaces »* (Genetics in relation with the problem of the most suitable crops)

- DELLAZOPPA J. G. (sub-director), *Estudio sobre Tilletia y problemas afines* (Study of smut and problems relating thereto).
- BELMONTE J. (in charge of the Milling and Breadmaking Section), *El maíz en la panificación* (Maize in bread-making).
- BONJOUR A. A., *Las malezas en el ensayo de rotaciones del Instituto fitotécnico « La Estanzuela »*. Determinación de su abundancia en tierra rastreada, en los meses de mayo y junio (Weeds in rotation trials made at the Phytotechnical Institute « La Estanzuela » Determination of their abundance on fallow lands during May and June).
- HENRY T. (in charge of the Section of Industrial Crops), *Trabajos de selección biológica en la Sota* (Biological Selection work in soja).
- CANEL M., *Inoculación de soja con cultivos artificiales de Bacillus radicicola* (Inoculation of soja with artificial cultures of *Bacillus radicicola*)
- BELMONTE J and FISCHER G. J., *La capacidad del trigo Lin Calel para mejorar las harinas uruguayas Estudio experimental y estadístico* (The value of the « Lin Calel » wheat for improving Uruguay flours Experimental and statistical enquiry)

These articles are fully illustrated and, in nearly every case, are followed by a bibliography and a summary in English or German.

The *Archivo Fitotécnico del Uruguay* will appear in instalments three or four of which will form a volume of from 300 to 400 pages. The subscription rate for foreign countries is fixed at 5.5 Uruguayan pesos per volume. Correspondence and postal orders should be sent to. *Archivo Fitotécnico del Uruguay*, La Estanzuela (Department of Colonia, República Oriental del Uruguay)

A. P

## Sylviculture.

UTILISATION OF THE CYPRESS FOR AFFORESTATION -- In a pamphlet entitled *Osservazioni e Note pratiche sul Cipresso*, M. D. MARIANI, Italian Inspector of Forests, gives practical advice on afforestation trials with cypress.

For more than 15 years the writer has carefully followed out the question of the utilisation of this tree, and has thus convinced himself that the cypress is an afforestation factor of the greatest value, especially on arid, stony and permeable lands, even if the trees are exposed to the strong action of the winds. The cypress shows great resistance to long periods of complete drought, and to the extreme heats of summer. In addition it has the extraordinary capacity of « re-greening », even in cases of complete drying up of the stock, prolonged over a year, provided only that the roots remain alive.

The writer has observed that in such cases the first sign of re-greening is always a green patch, which appears on the lower part of the young stem, spreads gradually and finally extends over the whole tree. The phenomenon of re-greening does not therefore take the form of the sprouting of new branches and a fresh foliage, but the dried parts take on gradually their normal colour and their lost freshness.

These observations have been made on plants, in areas of afforestation, of from 3 to 5 years old.

The writer also remarks on the resistance of cypress timber wood to insect attacks and on its freedom from decay consequent on damage from blows, etc., as well as on its excellent commercial qualities.

The clear and simple style, the valuable practical advice offered and the numerous fine photographic illustrations make this book decidedly useful as a guide for the use of cypress in afforestation, whether alone or mixed with other conifers or broad leaved trees.

G. T.

## BOOK NOTICES (I)

### Agrogeology and History of Agriculture.

VERMEIRE M. *Geschiedkundig schets van West Vlaanderens Landbouw en van den Eigenaars-en Landbouwers Bond*, 639 p. Bruges 1935, published by Verbeke-Loys.

Part I of this work, published on the occasion of the fiftieth anniversary of the Bruges of Association landowners and farmers ("Eigenaars-en Landbouwersbond van Brugge"), contains a treatise on the Agrogeology of Western Flanders and another on the History of Flemish agriculture.

A sketch of the geology is given in a few pages, followed by a description of the four principal regions of Western Flanders: region of dunes — region of polders — sandy region — region of clay and muds.

About 230 pages are devoted to a very complete account of the agricultural history of Western Flanders, going back to the Roman period with quotations from CAESAR and PLINY, and concluding by a report on the situation of agriculture in 1934. A large number of subjects are treated of general and especially of economic interest: influence of industrialisation on agriculture — reorganisation of agriculture in regions seriously affected by the world war — activity of the agricultural syndicates — agricultural education, etc.

Part II contains the history of the Bruges of Association Landowners and Farmers, with mention of the numerous activities in which the Association has been engaged during the 50 years of its existence.

W. B.

### Indoor Plants.

BRASCHI B., *Piante da appartamento*, 205 cm., 76 p. frontispice, 35 fig., plates in black and in colour. Roma 1935, Ramo editoriale degli agricoltori.

The Library for vocational agricultural education (Biblioteca per l'insegnamento agrario professionale), of which Sig. G. TASSINARI is the director, now includes more than 45 volumes. A small volume of much interest has lately been added the subject of which is that of indoor plants.

The object of the writer is to give plant lovers the essential knowledge for the encouragement of the right development of indoor plants, their blossoming, and their preservation in good conditions over a number of years.

A general section, dealing with the care to be given to indoor plants, is followed by a description of foliage plants, then of flowering plants, the different kinds being arranged in alphabetical order.

The clear style and abundant illustrations of the book will make it of real value.

G. R.

### Irrigation.

LEWIS A. D., *Irrigation in Australia*, p. 85, phot. 52, cart. 17. The Government printer, Pretoria, 1935.

This report deals with a number of irrigation schemes in Australia which were inspected during a rapid tour early in 1935.

A uniform order of treatment for each scheme has been adopted, which is roughly as follows: locality, historical outline of scheme rainfall and water supply, engineering works, agricultural features (such as soils, slopes, methods of irrigation, crops, etc.), and finally finance and settlement.

As pointed out in the report, the internal requirements of Australia can be met by 5,000 acres for canned apricots, peaches and pears, 10,000 acres for dried grapes and 10,000 acres for rice. It is sometimes said that a young country should meet only its home consumption, and expand the irrigation area only to meet such expanding consumption. If that were correct, Australia should have stopped irrigation enterprise many years ago, and the same applies to South Africa with a much smaller white

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(1) Under this heading are reviewed books presented to the Library.

population. The main market must be the oversea market, if development under irrigation is to continue. The whole position deserves an intense study of oversea markets, types of crops to grow, processing methods, and methods of reducing costs of production. The cost of water is only one of many items, and is usually not the biggest. A solution of the marketing difficulties might eliminate the great accumulation of interest which has taken place against such schemes as the Murrumbidgee, Maffra-Sale and Murray River, owing to slow development of the land, and might put closer settlement operations back into their proper perspective.

Particular attention should be drawn to the « extensive » policy of irrigation, which is now being followed by New South Wales.

### Dairy Science.

*Fundamentals of Dairy Science*, by Association of LORE ALFORD ROGERS in the Research Laboratories of the Bureau of Dairy Industry, U. S. Department of Agriculture, Second Edition (American Chemical Monograph Series No. 41), 23.5 cm., frontispiece (portrait), 615 pp. CXVI plates, 41 diagrams, figs. New York 1935, Reinhold Publishing Corporation

This second edition, revised and enlarged, of a work of the first rank, supplying the Bases of Dairy Science, has been prepared by the co-workers of LORE ALFORD ROGERS, to whom the volume is dedicated, in the Research Laboratories of the Bureau of Dairy Industry under the Federal Department of Agriculture of the United States. It consists of four parts, dealing respectively with: I. the constituents of milk — II. the physical chemistry of milk and milk products — III. the microbiology of milk and products — IV. the nutritional value of milk and milk products, the physiology of milk secretion. In all the book contains 15 chapters, dealing with the following subjects:

#### Part I.

Chapter I *Composition of milk and milk products* (History — Composition of milk — Composition of milk products — References)

Chapter II *Proteins of milk* (Introduction — Chemistry of casein — Preparation of casein — Uses of casein — Proteins of milk other than casein — References).

Chapter III *Milk Fat* (Composition — Fatty acids — Methods of examination milk fat — Deterioration of milk fat — References).

Chapter IV: *Pigments of milk* (General Discussion — Fat soluble Pigments — Water soluble Pigments — References).

Chapter V: *Lactose* (Chemistry of lactose — Manufacture — Uses — References).

#### Part II.

Chapter VI *Acid-base and Oxidation Reduction Equilibria of milk* (Acid-base equilibria — Oxidation Reduction — Equilibria References).

Chapter VII: *Physical Equilibria of milk* (Introduction — Protein phases — Colloidal phosphates — General considerations — Physical properties — Fat phase — References).

Chapter VIII. *Coagulation of milk* (Heat Coagulation — Alcohol Coagulation — Rennet Coagulation — Cheese manufacture — References).

Chapter IX: *Freezing of milk and milk products* (Temperatures of freezing — Effects of freezing — Ice cream — References).

#### Part III.

Chapter X. *Sources and distribution of bacteria found in milk* (Introduction — Bacteria from the environment — Bacteria from the milking animal — Milk borne epidemics — References).

Chapter XI: *Metabolism and Growth of Bacteria in milk and milk products* (Introduction — Nutrition of bacteria — Oxygen requirements and reducing abilities of bacteria — Phases of growth — Spore formation and germination — Products of bacterial metabolism — References).

Chapter XII: *Influence of physical and chemical factors on bacterial growth* (Hydrogen ion Concentration — Temperature — Pressure — Sound waves — Electricity — Ultra-violet rays — Osmotic pressure — Salts — Surface tension — Desiccation — Carbon dioxide — Preservatives — References).

Chapter XIII: *Yeasts and moulds of milk and milk products* (Introduction — Yeasts — Actinomycetes — Moulds — Sources — Factors affecting activities of yeasts and moulds — Mould prevention — Moulds as affecting specific dairy products — Key to aid in the identification of yeasts and moulds — References).

#### Part IV.

Chapter XIV: *Nutritional value of milk and milk products* (Nutritional requirements of mammals — Initial considerations regarding the nutritive properties of milk — Colostrum and its importance in nutrition — General biological experiments on the nutritive properties of milk — Part played by milk in the development of the modern knowledge of nutrition — General considerations in regard to the use of milk as a food particularly for infants and young children — Effects of manufacturing processes on the nutritive value of milk and milk products — References).

Chapter XV: *Physiology of Milk secretion* (Introduction — Functional factors affecting milk secretion — Food factors and milk secretion — Pathological conditions and milk secretion — Summary — References).

E G

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(1) Previous list September 1935. To be continued March 1936.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebd. (weekly); int. (home price); irr. (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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# **PLANT PROTECTION**



# INTERNATIONAL BULLETIN OF PLANT PROTECTION

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## DISCOVERIES AND CURRENT EVENTS \*

### French West Africa : Locust Control in Senegal in 1934 (1).

The characteristic of locust invasions which have taken place from 1929 to 1933 in Senegal is the invasion of the Colony by swarms from neighbouring regions: Mauritania and the Sudan. Notably in 1929, the direction of the swarms was very definite. They came from well determined zones. Later these swarms gradually spread over a larger area and, in 1931-32-33, the invading swarms entered Senegal and Faleme by the valleys in all regions, which seems to show that the locusts in neighbouring Colonies were attracted to the river zone from whence they instinctively advanced towards the West and South-West. Thus, in 1933, swarms flew over Senegal, Faleme and passed on to Ferlo and the Cercle of Tambacounda, the invasion covering, as in the four previous years, the regions of Louga, Cayor, Baol, Sine-Saloum and Caramance.

The invasion of 1934 was very different and seemed to indicate a new phase in the locust invasions which had taken place since 1929 from North to South and from East to West. This time very few swarms came from outside the country, but rather spread out from Ferlo, the majority flying towards the East or North-East, that is, towards Mauritania or the Sudan. A few swarms, however, returned towards the West or South, West of the Cercles of Djoloff and Sine-Saloum, but these were exceptions.

Another centre is also reported South of the Cercle of Bakel and the swarms which passed over Casamance flew from East to West.

It is, therefore, no longer a question of foreign locusts, but of egg deposits within the uninhabited regions of the Colony (Ferlo, deserts of Tentaba or Camon). Almost all the swarms consisted of tropical migratory locusts (*Locusta migratoria migratorioides*) their direction being generally contrary to that of preceeding years which, we hope, indicates a return towards their country of origin, or at least towards the regions in the North of Senegal.

As has already been reported in preceeding years the transmission of information has given great satisfaction in itself, but the basis of the system is uncertain though, with patience, it has been possible to gradually interest the farmers

\* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr DELASSUS, Chief of the Crop Protection and Phytopathological Inspection Service, Government General of Algeria, Algiers.

in the control of locusts in the apterous stage and in the destruction of egg pods as proved by the number of hopper bands destroyed and the number of breeding grounds reported, but the appearance of swarms from the interior of the country shows that reporting is not yet carried out by the nomads (Peilhs). The system of course cannot be applied in uninhabited or desert zones.

The control, as carried out, is difficult and if the destruction of egg pods or hopper bands is easy, it is absolutely useless against adults. Senegal, in spite of its reputation for being a desert zone, is, however, fairly well covered with shrubby vegetation and at Casamance there are forests sufficiently dense to prevent the locusts taking the poisoned bait laid down for them. The feeding habits of these adults is also characteristic. The leaves of palm trees (*Borassus*, *Elaeis*) are chiefly attacked, then the top branches of large trees and finally the undergrowth. Locusts attack the grass when foliage is lacking.

The use, therefore, of floursilicates or arsenic preparations is uncertain. The behaviour, also, of almost all these swarms prevents the operator following them closely as he is obliged to follow the roads or paths, his material being transported by camions; the flight of the swarms is of course unimpeded by sandy zones or swamps.

#### **Argentine Republic: Locust Invasion during the Season 1934-1935 (1).**

The invasion of the South American locust (*Schistocerca paranensis*) commenced early in the year. Towards the beginning of April swarms flew over the north of the province of Santa Fé.

On account of weather conditions the advance of the locusts was delayed towards the cultivated zones until the month of October when they spread all over the above mentioned province.

The provinces of Entre Ríos and Córdoba were invaded almost simultaneously and with less intensity, Santiago del Estero, Salta and Jujuy.

The work of control was started immediately using the material which is permanently at the disposal of the Ministry of Agriculture and also emergency measures, applying the methods which from long experience have proved to be most efficacious. First the largest possible quantity of adults ('voladora') were destroyed (31 826 696 kg), then the eggs ('desoves') (1 278 696 kg), then the larvae just emerged from the eggs ('mosquita') (2 873 587 kg) and finally the hoppers ('saltona') (133 903 134 kg).

For the destruction of the 'mosquita' flame throwers burning naphtha and fuel oil were used and for the hoppers the barriers which have been used for many years in the Republic with good results. In possible future invasions experience gained in the destruction of the locusts with chemicals will be profited by. The work of destruction and investigation must also be co-ordinated with that of neighbouring countries, namely, Uruguay, Paraguay and Brazil.

(1) Communication from Mr. JUAN F. TOMASELLO, Agronomical Engineer, Chief of the Division de Defensa Agrícola, transmitted by the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Agronomical Engineer, Director of Sanidad Vegetal, Ministry of Agriculture, Buenos Aires.

It must also be noted that a great campaign against winged locusts was undertaken in the province of Entre Ríos during the months of July and August including two huge swarms extending over approximately 800 square kilometres and which invaded the districts of Don Cristobal, Algarrobitos, Ejido de Nogoyá, Chiqueros and the whole of Crucesitas.

On this occasion 9 000 000 kg of adults were destroyed. In the Department of Gualaguaychú, in the said province, another swarm settled over an area of 625 square kilometres, of which 2 000 000 kg were destroyed.

In the province of Córdoba the invasion reached greater proportions than has been known for many years necessitating the use of emergency measures which resulted in 1 900 000 hectares of maize and more than 100 000 hectares of groundnut being saved.

In conclusion, it is considered that, on the whole, this invasion was less than that of 1933-1934 which reached exceptional proportions but which did not result in serious damage to the crops owing to the excellent organisation of the ' Defensa in Agrícola ' and the emergency measures voted by the National Congress for saving production from the depredations of the locusts.

#### **Finland: Apple Powdery Mildew (*Podosphaera leucotricha*) (1).**

Apple powdery mildew was observed for the first time in Finland in 1923. This fungus was destroyed by burning the young trees affected and by spraying all the apple and pear trees in the district. During the autumn of 1934, however, apple powdery mildew was reported in a garden near Helsinki. The parasite had been introduced by stocks of apple trees imported from Sweden in 1933. The new appearance of this disease is a very grave danger for apple growing in this country which already is hampered by many other difficulties due to the climate and the geographical situation.

#### **India: Insect Pests Newly Recorded in Burma (2).**

The following insect pests hitherto unrecorded in Burma were observed during 1934-35:—

- (1) *Pempheres affinis*, Fst. breeding in the stem of a hybrid variety (Cambodia × USSR) of cotton.
- (2) *Oregma lanigera*, Zehnt on sugar cane leaves in northern Burma.
- (3) *Tetraneura hirsuta*, Baker on sugar cane roots.
- (4) *Bruchus analis*, F. on pulses.
- (5) *Br. phaseoli*, Gyll. on pulses.

(1) Communication from the official correspondent of the Institute, Professor J. I. LERO, Helsinki.

(2) Communication from the official correspondent of the Institute, Mr C.C. GHOSH, B.A., F.R.E.S., Entomologist, Burma, Mandalay.

**Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (1).**

March, 1935.

Information received from all parts of the Colony has proved that the locust invasion has greatly diminished in comparison with the past season and that the invasion of the Colony by swarms coming from other countries has been considerably less.

Meteorological conditions, diseases caused by fungi and parasites, destruction by birds, Diptera, and worms, added to the active control carried out against the hoppers has resulted in a notable reduction in the plague and enables the conclusion to be drawn that the invasion is diminishing.

At the present time a few swarms are moving about without any fixed direction. On the southern border of Zululand and the eastern border of Swaziland a few swarms are in movement, crossing and re-crossing the borders. This phenomenon has not alarmed the farmers though it appears that it is not possible to carry out a complete destruction of the locusts by the groups executing the control even though they may be well equipped.

**Uruguay: Organisation of the Locust Control (2).**

**Legislation.**

Legislation on the control against the South American locust (*Schistocerca paranensis*) is given in the Law of 17 October 1891, afterwards modified by the Law of 27 October, 1908 and by various Decrees of the Executive Power which complete it.

We will confine ourselves here to simply referring to the principal points which are as follows.

It is compulsory for all occupiers - on whatever terms - of rural property, railway companies, Municipalities and the National Government on its lands, highways, roads, to destroy locusts in all stages of development; to report and define the places where egg-laying is taking place, within 48 hours, to the respective Commissions; to engage in the work of destruction all the staff judged necessary by the authorities and to be responsible for their maintenance and wages except in established cases of lack of means in which cases the corresponding Commission will be responsible for the expenditure; to give assistance to neighbouring properties, which have been invaded, by means of staff, etc. Persons

(1) Communication from Mr. JULIO GARDÉ ALFARO CARDOSO, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the Director of Agricultural Services of the Colony.

(2) Communication from the official correspondents of the Institute, Mr. JAIME MOLINS, Junior, Agronomical Engineer, and Mr. AGUSTIN TRUJILLO PELUFFO, Agronomical Engineer, Dirección de Agronomía, Ministerio de Industrias, Montevideo.



infringing the said provisions will be punished by a fine of 30.00 to 100.006 'pesos', when the properties in question are less than 50 hectares, for larger estates the fine is increased by 20 cents per hectare on the land where the fine is imposed which cannot in any case exceed 1000 'pesos' (the 'peso' of Uruguay is equal to 1 dollar and 3 ½ cents). Appeals against these fines may be made to the Executive Power.

For the general direction of the campaign and the satisfactory execution of the Law, in all its parts, it is proposed to establish the following organisations:—

#### CENTRAL COMMISSION FOR LOCUST CONTROL.

This Commission includes the Director of Agronomy, the Chief of the Section 'Fomento y Defensa Agrícola', delegates from the Ministries of Industry, the Interior, Public Works, War and Finance, also certain experts and persons recognised to be competent in the subject. The functions of this Commission are: The general direction of the locust campaign on the advice of the respective technical Bureaux; administration and collection of funds voted by the Government; distribution of material for the control; establishment of the 19 Zone Commissions, one for each Department of the Republic, etc.

#### ZONE COMMISSIONS.

Each of these Commissions consist of 5 members presided over by the Departmental Agronomy Expert and consisting of the Chief of Police, a delegate from the Municipality, and representatives of the Institutions for the Encouragement and Protection of Agriculture. Their duties are as follows: — To direct the control within the Department on the advice of the Departmental Agronomy Expert; to administer the funds remitted by the Central Commission; to supervise the distribution of material for the control; to nominate Inspectors overseer and workers for special work in accordance with the assignments fixed by the Central Commission; to organise gangs of workers on estates where the staff is insufficient to carry out the work of control; to impose and collect fines within the radius of the jurisdiction of the Commission in accordance with the Law; to nominate Sectional and District Commissions, etc.

#### SECTIONAL AND DISTRICT COMMISSIONS.

These will be established in neighbouring estates in the locality and will consist of three members. The Sectional Commissions function in the same way as the Police Sections in the Department and the Districts Commissions are established according to the number considered necessary for the organisation of the control. The functions are similar to those of the Zone Commissions, but within a radius of action limited by the circumscription within which the activities of these Commissions are confined. The members will have the status and powers of Honorary Inspectors.

## Regional Agronomy Experts.

These technical officials are permanently resident in the Departments presided over, as has been said, by the Zone Commissions and assume the direction of the control in these Departments. They also carry out the functions of inspectors; assemble the Sectional and District Commissions for the purpose of giving instructions and directing the control in the best possible manner. Their activities are of the utmost importance as on them is dependent the success or failure of the campaign.

## General Inspectors.

These are Technical officials dependent on the 'Dirección de Agronomía', Section 'Fomento y Defensa Agrícola'. Their mission is to control and administer the progress of all work and they are superior to the Departmental authorities. They superintend the various zones within the country, take all necessary measures, note the requirements in each region and inform the Section on the work carried during each period of the control.

For this purpose the Republic has been divided into 5 large areas, each including various Departments, and a General Inspector is appointed for each area.

## Material Employed.

The Central Commission distributes to the Zone Commissions, in accordance with the size of the invasion in each Department, the necessary material for effectively controlling the locusts. This material is distributed free of charge through the medium and under the supervision of the respective Commissions. Both the Central and Zone Commissions are authorised to sell the said material at cost price. The Commissions also sell the necessary fuels for the insecticide machinery and flame throwers, at prices much below the current prices and which are exempted from all internal taxation.

The material distributed on 8 January, 1933, is as follows: --

Boundary posts . . . . .	5 605
'Latigos' . . . . .	15 017
Flame throwers . . . . .	14 120
Naphta apparatus . . . . .	9 479
Metal barriers 30 to 40 cm high . . . . .	645 754 kg.
Liquid insecticides sprayers . . . . .	187
Spray pumps . . . . .	19
Naphta apparatus sold to private persons . . . . .	2 983
Metal barriers sold . . . . .	7 211

Fuels despatched on the same date:—

Denatured napta . . . . .	2 182 040 litres
Denatured kerosene . . . . .	189 000 "
Gas-oil . . . . .	86 000 kg.

## Credits Voted for the Campaign.

Up to the present the Public authorities have voted at different times the amount of half a million ' pesos ' (equivalent to 517 600 dollars) which has been spent on purchasing material, paying wages, payment by of the State of part of the cost of certain materials and chemical preparations for locust control, etc.

## Methods of Control.

All methods have been employed which will not be described as they are already well known. Egg pods are controlled by means of ploughing, harrowing, hoeing, etc. Certain Commissions buy the egg pods thus encouraging the destruction of millions of eggs.

Liquid insecticides. -- In this campaign, following investigations made by the Laboratory Section of the ' Dirección de Agronomía ' this organisation prepared a solution of caustic soda at 8 % which has given excellent results. At the same time cresylite of soda at 4 % was used which, being less caustic, is superior to the previous preparation, though the results are less satisfactory when the ' mosquita ' become ' saltona '.

Commercial creoline at 3 % also gives good results within the first five days after hatching.

Gas-oil emulsion with water in proportions varying between 35 and 50% have given positive results, although they have the disadvantage of being very costly. In addition to these preparations, used for the first time in this country, the well known emulsions with a soda or potash soap and kerosene basis have also been used.

The lack of suitable spraying material chiefly in the stock breeding zones, has prevented the use of these insecticides to any great extent and it was necessary to have recourse to watering cans which as well as being a very slow process is also very costly as a quantity of the liquid is wasted.

Nevertheless the quantity of soda solution sold by the Central Commission under the name of ' Fluido Laboratorio ' in tins of 200 litres each containing a concentrated solution to be diluted in five parts of water amounted, on 8 January, 1933, to 91 500 litres, representing 549 000 litres of insecticide. These figures show clearly the success of this control.

Poisoned baits. -- In view of the size of this invasion and the relative damage caused in the various zones, by what may be called the classical methods, trial is at present being made of poisoned baits with apparently satisfactory results. Relatively to what was previously used, larger quantities are now being prepared for use in localities where the ' saltona ' is more abundant. The preparation of these poisoned baits requires a certain dexterity on the part of special staff, the success or failure of the work carried out up to date having been dependent on this preparation.

Biological control. *Coccobacillus acridiorum*. — Studies on biological methods of control by means of *Coccobacillus acridiorum*, d'Hérelle, have been re-initiated.

Dr. Franz Fielitz, who uses a different technique to Dr. d'Hérelle, has prepared cultures of this micro-organism with which he expects to obtain more satisfactory results than by the d'Hérelle process.

Technicians of the 'Dirección de Agronomía' are at present occupied in putting this biological process into execution in the zone invaded by locusts.

The National Council of Administration has nominated a Commission for examining the method and the practical results obtained with the d'Hérelle process modified by Dr. Franz Fielitz.

*Phorbia culicrura*. — During the laying period, in certain regions of the country, the larva of *Phorbia culicrura*, Rond. has been observed destroying the eggs of *Schistocerca*. Although this fly destroys a certain quantity of locust eggs there is a risk of its propagation as in the larval stage it is a parasite of certain cultivated plants, and for this reason it is advisable to destroy it, as far as possible, at the same time as the locust eggs.

*Mermis acridiorum*. — Among the 'saltona' bands in some localities there has been observed a certain number of insects in the abdomen of which has been noted the presence of one or more individuals of the Nematode *Mermis acridiorum* which produces a delay in the development of the locust and causes its death before it reaches the adult stage.

## LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Germany.** — According to the modifications, dated 12 March 1935, to the provisions concerning protection against San José scale [*Aspidiotus perniciosus*] and apple maggot [*Rhagoletis pomonella*] see this *Bulletin*, 1934, No. 10, p. 221], it is established that citrus fruits from Spain will be exempted from inspection with regard to San José scale. Each consignment, however, should be accompanied by a certificate of health and origin issued by the Spanish Phytopathological Service. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1935, Bd. VII, Nr. 4, S. 36).

\* \* \* The 'Reichsbauernführer' has published new general provisions regulating the recognition of seeds based on the Decree of 26 March, 1934 [see this *Bulletin*, 1934, No. 7, p. 156].

From the phytosanitary point of view these provisions are limited to prescribing in a general way, that the inspection of fields intended for seed production should be also extended to the health of the plants. The report which should be made out at the time should contain all observations, even those of little importance, concerning diseases of plants and weeds which have been observed.

It is established, *inter alia*, that farms which have been recognised as infested by wart disease of potatoes [*Synchytrium endobioticum*] should not be authorised to sell seed potatoes. (*Ibid.*, 10. Juni 1935. Nr. 6, S. 82-90).

\*\*\* The Decree of 24 April, 1935, containing modifications to the Decree of 17 July, 1934, concerning the use of highly poisonous products [see this *Bulletin*, 1934, No. 11, p. 247], forbids the treatment of vines with arsenical preparations, powders or liquids, after 31 July.

It is prescribed that the labels attached to recipients and packages, also prospectuses, should serve as advertisements or instructions, in as far as they contain instructions for use, they should be previously be submitted to the central service of plant protection and the service of public safety of the Reich for approval (*Ibid.*, S. 81-82).

\*\*\* By Notification of 8 April, 1935, published as an appendix to No. 18 of the *Reichsministerialblatt* (Zentralblatt für das Deutsche Reich), has been given a list of horticultural and botanical establishments, nurseries and gardens which are subject to regular supervision and are officially recognised as conforming to the conditions established by the International Convention of Bern on grape phylloxera. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Juni 1935, 15. Jahrg., Nr. 6, S. 59).

**Germany (Lübeck).** — By Police Ordinance of 19 March, 1935, on the prevention of the spreading of *Galinsoga parviflora* ('Franzosenkraut'), the control of this weed has been made compulsory.

Owners, usufructuaries and tenants of land are obliged to destroy the plants of *G. parviflora* by hoeing if the plants are young and by pulling up by the roots if the plants are in flower. The plants pulled up should be burnt immediately or buried in holes of at least 40 cm in depth. If there are considerable quantities it is also permitted to mixed them with earth, pile them in heaps, cover the heaps with earth and leave them to be destroyed by fermentation.

It is forbidden to throw the plants pulled up into the furrows, on to the roads or manure heaps, etc., on to land belonging to others or to leave them on the spot where they have been pulled up. (*Gesetz- und Verordnungsblatt der freien und Hansestadt Lübeck*, Lübeck, 30. März 1935, Nr. 5, S. 40).

**Germany (Prussia).** — By Decree of 14 February, 1935, the public establishments for seed disinfection in the department of Hanover are subject to official control. The provisions correspond exactly with those adopted by Decree of 4 June, 1934, in Prussian Saxony [see this *Bulletin*, 1934, No. 11, p. 248]. (*Amthliche Pflanzenschutzbestimmungen*, Berlin, 1. Juni 1935, Bd. VII, Nr. 6, S. 91-93).

\*\*\* By Decree of 7 March, 1935, annulling that of 5 February, 1934, relative to the cultivation of potatoes non-resistant to wart disease [*Synchytrium endobioticum*] [see this *Bulletin*, 1934, No. 5, p. 104], it has been forbidden, in certain

districts of the province of East Prussia, to cultivate, after 1 April, 1935, varieties of potatoes non-resistant to this disease. Only a few non-resistant early varieties may be cultivated this year, and for the last time. (*Ibid.*, S. 93).

**England and Wales.** — With the object of preventing the introduction of the cherry fruit fly [*Rhagoletis cerasi*], the Minister of Agriculture and Fisheries has made an Order [The Importation of Raw Cherries Order of 1935, dated May 3, 1935] regulating the importation of cherries into England and Wales during the 1935 season.

From 28 May, 1935 the importation of cherries grown in Spain and France has been prohibited, with the exception of French cherries grown within a small district around Honfleur.

Cherries grown in Italy will be admitted until 12 June, 1935, if accompanied by a certificate of origin. After that date only those grown in the region of Emilia will be allowed to enter; after 23 June, 1935, the importation of cherries grown in any part of Italy will be entirely prohibited.

Cherries grown in Germany will be admitted until 26 June, 1935, if accompanied by a certificate of origin; after that date no German cherries will be admitted except those certified not to have been grown south of latitude 53° N. or in East Prussia.

Certificates of origin must accompany cherries grown in any other European country. (*The Journal of the Ministry of Agriculture*, London, June, 1935, Vol. XLII, No. 3, p. 220).

**Argentine Republic.** — The Resolution No. 850 of 18 December, 1934, authorises the 'Dirección de Defensa Agrícola y Sanidad Vegetal' to hand over to the Argentine Fertilisers Syndicate, for industrial purposes, hoppers of the South American locust [*Schistocerca paranensis*]. (*Boletín Oficial de la República Argentina*, Buenos Aires, 23 de abril de 1935, año XLIII, núm. 12.254, pág. 930).

**Colombia.** — By 'Resolución' No. 8 of 23 January, 1935, a Commission is nominated for the purpose of studying a plague of ants which has appeared in the coffee plantations of the Municipality of Chinchiná, Department of Caldas and also the diseases existing in the crops of this region which may be related to these insects. (*Diario Oficial*, Bogotá, 2 de marzo de 1935, año LXXI, núm. 22825, pág. 517).

**Eritrea.** — By Decree No. 7090 of the High Commissioner for the East African Colonies, dated 4 March, 1935, imports of fresh fruit and vegetables into Eritrea are not subject to the provisions contained in the Decree No. 2026 of the Governor, dated 13 July, 1914. (*Bollettino Economico dell'Eritrea*, Asmara, 31 marzo 1935, anno VII, n. 81, p. 2940).

**France.** — The Law of 10 March, 1935, on the suppression of fraud in the trade of products used for the destruction of pests of crops (insecticides, fungicides, etc.), establishes the following:—

Art. 1. — Article 1 of the Law of 4 August, 1903, modified by the Law of 18 April, 1922, is modified as follows:—

‘According to the punishments provided for by Art. 13 of the Law of 1 August, 1905, modified by the Law of 21 July, 1929, all those will be punished who, when selling or delivering copper fungicides, raw material or mixtures, have failed to make known to the purchaser, on the bill as well as the invoice, the content in pure copper contained per 100 kg. in the material delivered. The same information should be clearly written on all packing material and receptacles in which the merchandise is delivered to the purchaser, on all packing material and receptacles in which the merchandise is packed before delivery to the purchaser and on all prospectuses, advertisements, price lists and commercial bills.

‘The same punishments will be awarded to those who, when selling or delivering insecticides, fungicides, and, in general, all products used in the control of crop pests, raw material or mixtures, have not informed the purchaser of the content in useful elements contained in the products as delivered in the same conditions as described above’.

Art. 2. — Article 2 of the Law of 4 August, 1930, is completed as follows:—

‘Regulations of public administration will determine the conditions of application for this Law with regard to the products mentioned in the last paragraph of the preceding Article, other than copper fungicides’.

Art. 3. — The Law of 18 April, 1922, is revoked. (*Journal Officiel de la République Française*, Paris, 12 mars 1935, LXVII<sup>e</sup> année, n° 60, p. 2914).

\* \* \* By Ministerial Decree of 23 March, 1935 a Commission has been established at the Ministry of Agriculture entrusted with the work of centralising and examining declarations on the planting of vines to replace those destroyed on account of infestation by grape phylloxera. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1<sup>er</sup> avril 1935, année 1935, n° 7, p. 159).

**Italy.** — By Ministerial Decree of 12 March, 1935, and according to Art. 17 of Law No. 987 of 18 June, 1931, containing measures for the protection of cultivated plants and agricultural products against adverse conditions and also for the organisation of relative services [see this *Bulletin*, 1931, No. 9, p. 166], a compulsory Syndicate has been established for the improvement and development of fruit-growing in the province of Verona.

The contributions payable by members of the Syndicate cannot exceed 10 centesimi per tree in bearing. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1<sup>o</sup> aprile 1935, anno VII, n. 10, pp. 1555-1556).

\* \* The Ministerial Decree of 18 March, 1935, establishes that, when wild boars existing in the territory of the commune of Subiaco damage the crops, the prefectorial commissary for the Commission for hunting in the province of Rome, may arrange for their destruction by employing competent persons possessing a regular permit to carry fire arms. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 23 marzo 1935, anno 76<sup>o</sup>, n. 69, p. 1156).

\* \* By Ministerial Decree of 25 March, 1935 and according to Art. 17 of the Law No. 987 of 18 June, 1931 concerning measures for the protection of cultivated plants and agricultural products against adverse conditions and the services relative thereto [see this *Bulletin*, 1931, No. 9, p. 166], a compulsory Syndicate for the improvement and development of fruit growing has been established in the province of Treviso. The contribution payable by members of the Syndicate cannot exceed 10 centesimi per tree in bearing. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 11 aprile 1935, anno VII, n. 11, pp. 1693-1694).

\* \* The Law No. 885 of 8 April, 1935 has transformed into a Law the Royal Decree-Law No. 2025 of 10 December, 1934, relative to the importation of liquid hydrocyanic acid for use in the control of scale insects of citrus trees [see this *Bulletin*, 1935, No. 2, p. 40]. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 17 giugno 1935, anno 76<sup>o</sup>, n. 141, p. 2992).

\* \* By Ministerial Decree of 12 April, 1935, and by virtue of Article 17 of the Law No. 987 of 18 June 1931 [see this *Bulletin*, 1931, No. 9, p. 166], a compulsory Syndicate for the improvement and development of fruit-growing has been established in the province of Ferrara

The contribution payable by each member of the Syndicate cannot exceed 10 centesimi per tree in bearing. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 11 maggio 1935, anno VII, n. 14, pp. 2125-2126).

**Mexico.** — By 'Acuerdo' of 8 March, 1934 in all articles of the 'Ley Federal de Plagas y Reglamento de Policía Sanitaria Agrícola' in which jurisprudence was granted to the former 'Oficina Federal para la Defensa Agrícola' the same faculties are granted to the 'Dirección de Fomento Agrícola' for applying and interpreting the laws and regulations of the branch. (*Diario Oficial*, México, 23 de agosto de 1934, tomo LXXXV, núm. 46, pág. 962).

\* \* By 'Cuarentena interior' No. 1, dated 23 January, 1935, rules are established for carrying out a more efficacious control of the pink bollworm of cotton (*Pectinophora gossypiella*) and to prevent it spreading. *Inter alia*, 5 'control zones' are specified, that is to say, the areas limited and affected by this 'Cuarentena' including various Municipalities of the States of Coahuila, Durango, and Chihuahua. (*Ibid.*, 30 de marzo de 1935, tomo LXXXIX, núm. 26, pág. 443, 1 mapa).



**Palestine.** — By the Citrus Fruit Transport Rules, 1935, published on 24 April, 1935, citrus fruit found after inspection to be free from black scale [*Saissetia oleae*] and without leaves, twigs or branches may be transported from any part of Palestine to any other part. (*Hadar*, Tel-Aviv-Jaffa, Palestine, April, 1935, Vol. VIII, No. 4, pp. 118-119).

**Netherlands (The).** — The Law No. 242 of 9 May, 1935, contains new measures for preventing and controlling wart disease of potatoes (*Synchytrium endobioticum*). (*Staatsblad van het Koninkrijk der Nederlanden*, N° 242, blz. 1-7).

**Peru.** — By Ministerial Resolution No. 18 of 22 January, 1935, approval is given to the regulations contained in the 'Resolución suprema' No. 141 of 15 December, 1934 [see this *Bulletin*, 1935, No. 6, p. 138] with regard to conditions for cultivating cotton in the valley of the Chira and its tributaries in relation to the pests 'arreatado' (*Dysdercus ruficollis*) and 'gorgojo de la chupadera' (*Gasterocercodes gossypii*). (*La Vida Agrícola*, Lima, marzo de 1935, vol. XII, n° 136, págs. 221 y 222).

\*\*\* By Ministerial Resolution No. 19 of the same date approval is given to the regulations contained in the 'Resolución suprema' No. 142 of 15 December, 1934, [see this *Bulletin*, 1935, No. 6, p. 139] with regard to conditions for cultivating cotton in the valley of the Santa in relation to the 'arreatado'. (*Ibid.*, págs. 223 y 224).

**Portugal.** — The Decree No. 25208 of 1 April, 1935, declares the district of Lisbon to be under a regime of prophylactic protection in order to avoid the spread of elm parasites. (*Diário do Governo*, Lisboa, 1 de abril de 1935, I série, num. 74, pag. 462).

**Rumania (1).** — By Ministerial Decision No. 97629 of 24 May, 1935, the Ministerial Decision No. 220659 of 3 November, 1934 [see this *Bulletin*, 1935, No. 1, pp. 17-18] is modified as follows: — Algeria should not be included among the countries infested with San José scale (*Aspidiotus perniciosus*) as, up to the present, this pest has been not reported in that country.

The other measures and provisions of the Ministerial Decision of 3 November, 1934, remain in force.

**Switzerland (Canton of Vaud).** — A Circular issued by the Department of Agriculture, Industry and Commerce, dated 22 March, 1935, to the prefects and municipalities of the Canton of Vaud, recalls the provisions in force on the destruction of woolly aphis of the apple [*Eriosoma lanigerum*], the removing of mistletoe [*Viscum album*], and also the collection of larvae of cockchafers [*Melolontha*]. (*La Terre Vaudoise*, Lausanne, 30 mars 1935, XXVII<sup>e</sup> année, n° 13, p. 205-206).

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The first chapter is introductory and contains, *inter alia*, a brief review of the historical development of plant pathology and a long list of works, both old and modern, on this science. The following chapters are concerned respectively with non-parasitic, virus, bacterial and fungus diseases also with phanerogamic parasites.  
Every disease, its causal agent and the more appropriate control measures are discussed in detail and the most important literature is listed in each case at the end. Some diseases are treated in a more or less monographic form. Both in general text and in the explanations of text figures frequent use is made of Latin names of hosts and parasites. These, with the two indices [and with bibliographic citations, may indicate to the foreign reader the contents of the book and the way in which the author treats his subject].
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- TILFORD, Paul E. The use of the quinhydrone and antimony electrodes for determining the pH of solid culture media *Phytopathology*, Lancaster, Pa., 1935, Vol. 25, No. 3, pp 362-367. Literature cited, p 367.
- TIMS, Eugene C. A Stilbum disease of fig in Louisiana. *Phytopathology*, Lancaster, Pa., 1935, Vol. 25, No 2, pp 208-222, figs 1-2 Literature cited, pp. 220-222.  
[*Stilbum cinnabarinum* on *Ficus carica*]
- TRAVERSO, Onorato Insetti e crittogame parassiti delle piante da frutto, ornamentali, ortensi e agrarie. Anticrittogamici e insetticidi: metodi per usarli contro i parassiti. Manuale tecnico-pratico ad uso degli agricoltori, giardinieri e coltivatori dilettanti Milano, Fratelli Ingegnoli, [1935], XV, 268 pp., 117 figg.  
[As the author explains in the preface, the practical object of this manual is to facilitate the control of plant pests, to make known to growers the diseases



and parasites which are most common and most harmful, the fungicides and insecticides and the methods of employment in order to obtain the best results, to convince growers of the necessity and utility of availing themselves of the best methods of controlling plant diseases and pests. In order that the book should be of practical utility for all growers, and principally for gardeners who frequently practice varied and specialised branches of cultivation, the author has assembled in the same volume the diseases and pest which attack fruits and ornamental, horticultural and agricultural plants.

The manual is divided into four parts.

The first contains general information concerning entomology and plant pathology, the protection and treatment of plants, the insecticides and fungicides.

The second part contains a systematic survey of the species of plants which are subject to greater injury by parasites with short notes on the recognition of the principal and most injurious diseases and pests.

In the third part are enumerated noxious insects and other animals attacking plants, a description being given of each and the most suitable methods for their control.

The last part contains a survey of cryptogams and other plant parasites. As in the third part, descriptions are given of plant parasites and methods for their control].

TRINCHIERI, Giulio. Asserzioni gratuite. Il "black rot" della vite in Italia? *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1935, anno 81<sup>o</sup> e 61<sup>o</sup>, n. 9, pp. 230-232.

[Contradicts the statement made by G. Lüstner (see this *Bulletin*, 1935, No. 5, p. 121) that *Guignardia bidwellii* exists also in Italy].

TYLER, Leon J., and SHUMWAY, Clyde P. Hybridization between *Sphacelotheca sorghi* and *Sorosporium reilianum*. *Phytopathology*, Lancaster, Pa., 1935, Vol. 25, No. 3, pp. 375-376, fig. 1.

VANDERWALLE, R. Contribution à l'étude de la désinfection des céréales par l'eau chaude. 1<sup>re</sup> partie: L'action de la chaleur sur la germination des semences. *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1935, tome IV, n<sup>o</sup> 1, p. 3-21, 11 diagr., fig. 1-3. Bibliographie, p. 15.

[With a summary in Flemish, German and English].

VAYSSIÈRE, P. Sur deux insectes récemment introduits en France. *Bulletin de la Société Entomologique de France*, Paris, 1935, tome XL, n<sup>o</sup> 3, p. 43-44.

[*Anaemerus fuscus* brought from West Africa to France with a specimen of *Tephrosia leptostachya*; *Paratrechina* (*Nylanderia*) *flavipes* on bulbs of *Lilium formosum* and *L. magnificum* from Japan].

VERDOORN, Fr. (Edited by). *Chronica Botanica*. Leiden, Netherlands, 1935, Vol. I, 447 pp., 85 portraits, 93 figs.

[This first volume of this 'Annual Record of Pure and Applied Botany', dated April, 1935, is edited and provisionally published by Dr. Fr. Verdoorn in collaboration with an advisory board and numerous assistant and corresponding editors, also with associate editors Messrs. Alan R. Gemmell, J. G. Verdoorn-Hunik, and H. Hirsch.

'Chronica Botanica' is at the same time a new year-book, directory and register devoted to all branches of plant science.

The volume commences with an article on 'International coöperation among botanists', written by Dr. E. D. Merrill, Director of the New York Botanic Garden, and ends thus:—

'The « *Chronica Botanica* » as conceived covers a field not hitherto preëmpted, conflicts with no established periodical, supplements those already in existence, and should, by its very nature, encourage the spirit of international coöperation, a spirit characteristic of this our science, of which we, as botanists representing all nations, are individually and collectively proud.'

An almanac follows, giving past and future events (January, 1935-April, 1936). A special section treats in detail the forthcoming Sixth International Botanical Congress (Amsterdam, 2-7 September, 1935).

Considerable space (pp. 41-75) is also devoted to other congresses which have already taken place or will be held in 1935; to the past and future activities of the international and important associations, commissions, federations, institutions, etc., which are more or less connected with pure and applied botany and the allied sciences.

The longest section (pp. 76-334) is that entitled 'Review of all branches of plant science during 1934' which gives all the scientific and personal news collected up to the end of January, 1935 and is an exhaustive and up-to-date address list of all institutions and societies. Countries and place-names are arranged in alphabetic order.

A section entitles 'Correspondence (Letters to the Editor and Queries)' contains subjects of general interest.

This is followed by: a list of new periodicals, new and changed addresses (pp. 345-378), editorial notes, a special supplement (Lanjouw, Uitten, and Rammer: A short illustrated history of botany in the Netherlands), small classified advertisements (plants, books, appointments, instruments, miscellaneous), a general advertiser, an index of plant names and plant parasites, and index of persons.

It is superfluous to add that a large part of the volume is devoted to establishments and specialists in various parts of the world engaged on the study of plant pathology].

VOORHEES, R. K. Histological studies of a seedling disease of corn caused by *Gibberella moniliformis*. *Journal of Agricultural Research*, Washington, D. C., 1934, Vol. 49, No. 11, pp. 1009-1015, pls. 1-10. Literature cited p. 1015.

VOÛTE, A. D. Twee beschadigers van jonge mangga-loten: I de manggalotboorder (*Chlumetia transversa* Wlk.). II de plumpe manggarups (*Bombotelia jacosatrix* Gn.). *Landbouw, Buitenzorg* 1934, X jaarg. (1934/35), no 7, blz. 255-271, pl. I-II. Literatuur, blz. 270.

[In Dutch, with the title and summary in English:— 'Two minor pests of young mango shoots (*Chlumetia transversa* and *Bombotelia jacosatrix*)'].]

WAHL, Bruno. Erfahrungen über die San José-Schildlaus. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1935, 15. Jahrg., Nr. 4, S. 40; Nr. 5, S. 47-48.

[*Aspidiotus perniciosus*].

WALKER, J. C., and BLANK, L. M. Fusarium-resistant Danish Ballhead cabbage. *Journal of Agricultural Research*, Washington, D. C., 1934, Vol. 49, No. 11, pp. 983-989, fig. 1.

[*Fusarium conglutinans*].

WARDLAW, C. W. Diseases of the banana and of the Manila hemp plant. London, Macmillan and Co., Ltd., 1935, XII + 615 pp., 295 figs., 1 pl. Literature on banana diseases, pp. 575-602.

[The object of this volume is to give to students, scientific investigators and practical farmers as complete a description as possible of the present state of knowledge relative to diseases attacking the banana (*Musa* spp.) in various countries also Manila hemp or abacá (*M. textilis*).

In this way are reviewed the numerous fungus, bacteriological, physiological and virus diseases attacking the various parts of these plants; general information is given on each disease, the internal and external characteristics they produced are described, conditions favourable to their development and the most suitable means of prevention and control.

As might have been supposed the greatest amount of space is given to those diseases which are of major importance from the practical standpoint thus, for example four chapters (pp. 14-131) are devoted to banana wilt (Panama disease) and wilt disease of the Manila hemp plant (*Fusarium cubense*); five (pp. 231-284) to diseases of bananas while still on the plant (pp. 385-535), and seven to diseases of fruits after gathering and during storage.

In an appendix is given a systematic and useful list of bacteria and fungi, both parasites and saprophytes, observed on *Musa* spp. (pp. 547-555)].

WEIJMANN, F. L. Dissemination of southern celery-mosaic virus on vegetable crops in Florida. *Phytopathology*, Lancaster, Pa., 1935, Vol. 25, No. 3, pp. 289-308, figs. 1-6. Literature cited, p. 308.

WEIJMANN, F. L. The host range of the southern celery as mosaic virus. *Phytopathology*, Lancaster, Pa., 1935, Vol. 25, No. 4, pp. 377-404. Literature cited, p. 404.

WENZL, Hans. Beobachtungen über die Anfälligkeit von Birnensorten gegen die Weissfleckenkrankheit (*Mycosphaerella sentina*). *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1935, 45. Bd., Heft 6/7, S. 305-316. Schriftenverzeichnis, S. 315-316.

WIESMANN, R. Untersuchungen über die Bedeutung der Ascosporen (Wintersporen) und der Konidien an den schorfigen Trieben für die Entstehung der Primärinfektionen des Apfelschorfpilzes *Fusicladium dendriticum*. *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1935, 49. Jahrg., Heft 2, S. 147-175, Fig. 1-9. Zitierte Literatur, S. 174-175.

[With a summary also in French].

WILHELM, A. F. Studien über die Bedeutung der Lipide, insbesondere Phosphatide, für die Frostresistenz der Pflanzen. *Phytopathologische Zeitschrift*, Berlin 1935, Bd. VIII, Heft 3, S. 225-236. Literatur, S. 236.

WOLLENWEBER, H. W. Alpenveilchen-(Zyklamen-) Welke, eine Krankheit pilzlicher Natur. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1935, 15. Jahrg., Nr. 4, S. 38-39, Abb. 1-2.

[Wilt of *Cyclamen persicum* caused by *Fusarium oxysporum* var. *aurantiacum*. On the plants attacked *F. solani*, *Cylindrocarpon radiculicola*, *Nectria rubi*, *N. septomyxa*, and *Gloeosporium fructigenum* have also been observed].

ZWÖLFER, W. Die Temperaturabhängigkeit der Entwicklung der Nonne (*Lymantria monacha* L.) und ihre bevölkerungswissenschaftliche Auswertung. *Zeitschrift für angewandte Entomologie*, Berlin 1934, Bd. XXI, Heft 3, S. 333-384, Abb. 1-18. Literatur, S. 383-384.

## NOTES

**The Fourth International Vine and Wine Congress.** — This Congress will take place at Lausanne, Switzerland from 26 to 31 August, 1935 and will discuss, *inter alia*, the control of diseases and pests of the vine.

**Sanitary Protection of the Coffee Tree and its Product in the Republic of Columbia.** — The National Federation of Coffee Planters of Colombia, Bogotá, has established in its Central Experiment Station, Esperanza, department of Cundinamarca, a special service of sanitary protection for the coffee tree and its product by means of the Entomological and Phytopathological Sections, both of these Sections being in charge of experts specialised in such subjects.

# INTERNATIONAL BULLETIN OF PLANT PROTECTION

## DISCOVERIES AND CURRENT EVENTS \*

### **Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (1).**

During the month of January, 1935, the control was carried out in all parts of the Colony. From information received it appears that during the month a total was destroyed of 71.176 kg of egg-pods, 179.069 kg of hoppers and 228.920 kg of adults. This control was particularly active in the provinces of Benguela, Huila and Luanda. In addition to the above, 217 hopper bands have been destroyed.

No information is available on the districts of Congo, Bié, and Quanza Sul.

\* \* \*

The locust control has continued actively throughout the Colony. During the month of February, 1935 a total of 329.948 kg. of egg-pods, 307.446 kg. of hoppers and 320.825 kg. of adults have been destroyed also 865 hopper bands. This control has been particularly intense in the provinces of Bié, Huila, Benguela and Malange. The material employed in this campaign was as follows (in tons):—sodium arsenite, 75.5; sprayers 'Tipo Mixto', 1300; 'Barlow' dusting apparatus, 100; galvanised iron barriers, 10.000; flame throwers, 32; sprayers 'Hypolito', 108.

### **Argentine Republic: New Studies on the 'Lepra Explosiva' of the Orange (2).**

The 'Dirección de Sanidad Vegetal' of the Ministry of Agriculture of the Argentine Republic has informed the 'Superioridad' on the work carried out by the Agronomical Engineer, Mr. Alfredo M. Offermann in the Phytopathological Laboratory of Bella Vista, province of Corrientes on the disease commonly known as 'lepra explosiva', considered the most serious disorder of citrus growing in that province.

\* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from Mr. JORGE DE BARROS RODRIGUES QUEIROZ, Agronomy Engineer attached to the Locust Control Service, Luanda, transmitted to the Institute by the Government General of the Colony.

(2) Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATO, Agronomical Engineer, Director of the 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

The disease has been attributed in the Argentine Republic to the action of *Amyliroza aurantiorum* Speg., while in other parts of the world (the United States of America) it is attributed to another fungus, *Cladosporium herbarum* (Pers.) Lk. var. *citricolum* Fawcett. The work carried out in the Laboratory at Bella Vista shows that there is no mycelium in the tissues corresponding to the undeveloped spots, and that the isolated microflora which appear afterwards is constituted by ordinary organisms or parasites which have nothing to do with the agent causing 'lepra explosiva'.

The study of the symptoms of the disease, the form of propagation and other characteristics, has given reason for thinking it may be a virus disease. The possibility that 'lepra explosiva' was of physiological origin, has been rejected since the disease has been artificially reproduced by inoculation with the sap expressed from a diseased plant.

The lesions observed in the organs attacked have been followed throughout all the development, especially as manifested on the twigs, leaves and fruit. The first symptoms of the disease are almost always unobserved as these are only manifested by slight circular or oval protuberances or swellings chiefly localised on the annual shoots or shoots more than three months old. These swellings are green to begin with and only change colour with growth, being then very easily distinguished; their size may be between 4 and 12 mm. When about 4 mm. in diameter they resemble raised disks which begin to show a depression in the centre as the size of spot the increases. A greenish ring forms on the bark the centre of which turns yellow; later with the diminution in the flow of sap, the part which corresponds with the ring dries up first and at the same time begins to turn into a cork-like substance of a reddish cinnamon colour. When the diminution of the sap is very pronounced on account of drought, etc., and occurs before the formation of the ring, the whole disk dries up and takes on the above mentioned colour.

The studies on the form in which infection is produced show that on the twigs and shoots attacked by 'lepra' it is especially active in humid surroundings. Following heavy rains, the watery marks typical of the disease, were also observed on the leaves. Once attacked the leaf falls prematurely though previously the substances contained in the leaf concentrate in the region of the bud protected by the leaf stalk; simultaneously with the concentration of the substances the disease appears in the region adjacent to the bud and forms here a new typical mark on the twigs. It is easy to understand how by grafting this bud a infected tree is obtained. Sometimes it occurs that the infection which covers the branch does not reach the leaf, but attacks some other part, such as the shoots where the characteristic lesions appear.

Observations were also made on the effect of 'lepra explosiva' on plants and two common forms were determined, a chronic form, which is the most frequent and does not kill the plant, but maintains it in a state of extreme debility; and an aggravated form which kills the plant within 2 to 5 years.

The damage caused by 'lepra explosiva' varies; at first the twigs, and principally the shoots, dry up, the leaves attacked fall easily and the fruit deteriorates when it does not actually fall. The disease also acts as a channel for all classes of destructive agents among others *Colletotrichum gloeosporioides*.

Finally, studies have been made on methods of control, according to two systems: external and internal treatment. With the external method (application of Bordeaux mixture with oil emulsion, removal of branches attacked, etc.), a favourable reaction has been observed in the subjects treated though not completely liberated from the infection. With internal treatment (injections of various solutions of mercury bichloride, iodine, crystal violet, etc., in small doses), greater hopes have been raised. While these studies are taking place, among the means of control to be adopted in addition to those already in use (spraying with Bordeaux mixture and oil emulsions, pruning, etc.), it is of primary importance when establishing new plantations to take care that the plants do not come from trees attacked by the disease and, above all, to take special care that buds for grafting are taken from plants completely free from 'lepra explosiva'.

**Brazil: Some New Diseases Observed in the State of Minas Geraes in 1934 (1).**

<i>Averrhoa carambola</i>	<i>Colletotrichum gloeosporioides</i> Penz.
<i>Beta vulgaris</i>	<i>Heterodera radiculicola</i> Greeff
<i>Brassica oleracea capitata</i>	<i>Alternaria brassicae</i> Sacc.
<i>Chrysanthemum</i> sp.	<i>Oidium</i> sp.
<i>Coffea arabica</i>	<i>Corticium koleroga</i> (Cke) v. Höhn. Destroyed a nursery bed of 10,000 seedlings at Herval.
<i>Citrus</i> sp.	<i>Sphaceloma fawcettii</i> var. <i>viscosa</i> Jenkins. At Jacutinga on sweet orange fruit, var. Bahia. Leprose — Cause obscure. On fruit of sweet orange trees at Juiz de Fora.
<i>Cucumis melo</i>	<i>Colletotrichum lagenarium</i> (Pass.) E. & H.
<i>Dianthus</i> sp.	<i>Cercospora citrullina</i> Cke
<i>Dioscorea alata</i>	<i>Sclerotium rolfsii</i> Sacc.
<i>Godetia</i> sp.	<i>Cercospora dioscoreae</i> E. & M.
<i>Gossypium</i> sp.	<i>Sclerotium rolfsii</i> Sacc.
<i>Holcus</i> sp.	<i>Cercospora gossypina</i> Cke.
<i>Ipomoea batatas</i>	<i>Puccinia purpurca</i> Cke.
<i>Lupinus polyphyllus</i>	<i>Pythium</i> sp.
<i>Lycopersicum esculentum</i>	<i>Sclerotium rolfsii</i> Sacc.
<i>Manihot utilissima</i>	<i>Rhizoctonia solani</i> Kühn. Causes fruit rot in rainy weather.
<i>Nigella</i> sp.	<i>Diplodia cacaoicola</i> P. Henn. Attacks the foot of plant and comestible roots.
	<i>Sclerotium rolfsii</i> Sacc.

(1) Communication from Mr. ALBERT S. MULLER, Professor of Phytopathology, Higher School of Agriculture and Veterinary Science, State of Minas Geraes, Viçosa, transmitted to the International Institute of Agriculture by Mr. J. C. BELO LISBÔA, Director of the above mentioned School.

<i>Persea americana</i>	<i>Sphaceloma persee</i> Jenkins. On plants in nursery from seeds from Limeira, São Paulo.
<i>Pyrus malus</i>	<i>Oidium</i> sp.
<i>Raphanus sativus</i>	<i>Peronospora parasitica</i> (Pers.) de By.
<i>Saccharum officinarum</i>	Frost blotch - Worst on POJ 2725. Chlorotic blotch - Worst on POJ 2714. Associated with <i>Fusarium moniliforme</i> Sheld.
<i>Solanum melongena</i>	<i>Phomopsis vexans</i> (S. & S.) Harter.
<i>Zea mays</i>	<i>Cercospora</i> sp.

### Eritrea: Locusts (1).

During the months of May and June, 1935, no locusts have been reported in the Colony.

### India: New Plants Diseases Recorded in 1934 (2).

Pusa (Reported by the Imperial Mycologist, Imperial Institute of Agricultural Research, Pusa).

<i>Saccharum officinarum</i>	<i>Helminthosporium</i> sp. causing foot-rot of seedlings.
<i>Elettaria cardamomum</i>	Stinking rot caused by <i>Phyllosticta</i> sp and <i>Sphaerella</i> sp. (leaf-spot).
<i>Raphanus sativus</i>	<i>Rhizoctonia solani</i> .
<i>Zea mays</i>	<i>Rhizoctonia bataticola</i> . <i>Sclerotinia sclerotiorum</i> <i>Fusarium</i> sp.
<i>Merremia emarginata</i>	<i>Cystopus candidus</i> (Pers.) Lévl.
<i>Castanea vulgaris</i>	<i>Endothia</i> sp.   <i>Sclerotium</i> sp.   On fruits
<i>Glycine hispida</i>	<i>Cercospora</i> sp.
<i>Crotalaria juncea</i>	<i>Cercospora</i> sp.   Leaf-spot
<i>Jasminum angustifolium</i>	<i>Cercospora</i> sp.
<i>Vitis vinifera</i>	<i>Diplodia</i> sp., leaf-spot.

Madras (Reported by Mr. S. Sundararaman A v l., Government Mycologist, Coimbatore).

<i>Elettaria cardamomum</i>	Mosaic of cardamom. Propagation through seed is recommended as the most effective method of control.
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(1) Communication from the official correspondent of the Institute, Dr. ROLANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

(2) Communication from the official correspondent of the Institute, Mr. I. D. GALLOWAY, M. A., Imperial Mycologist, Imperial Institute of Agricultural Research, Pusa, Bihar, India.



*Oryza sativa*

*Fusarium moniliforme* var *majus* causes foot-rot  
Seed treated with mercury dusts is recommended.

*Nicotiana tabacum*

*Pythium aphanidermatum* causes damping-off of seedlings in the nursery. The use of raised beds (where water does not stagnate) and treating the surface of the beds by burning trash on them have been found effective.

United Provinces (Reported by Mr P. K. Dev, Plant Pathologist Cawnpore)

*Arachis hypogaea*

*Fusarium* sp., wilt

*Inga dulcis*

*Colletotrichum* sp., leaf spot

*Linum usitatissimum*

*Oidium* sp.

*Saccharum officinarum*

*Rhizoctonia* sp. bacterial top rot

United Provinces (Reported by Dr J. H. Mitter, University of Allahabad Allahabad)

*Solanum tuberosum*

*Fusarium* *undul* (*F. solani* var *medium* Wt.)

*Pyrus malus*

*Fusarium moniliforme* Sheldon

*Mimusops hindia*

*Uromyces gentilis* Syd

*Mimosa rubicaulis*

*Ravenelia cinerea* Syd

*Deutzia staminea*

*Aecidium tandonii* Mitter

*Poran paniculata*

*Diaporthe mitteriana* Syd

*Dalbergia sissoo*

*Circospora sissoo* Syd

*Peristrophe bicalyculata*

*Circosporella peristrophe* Syd

*Zizyphus rotundifolia*

*Mittenella zizyphina* Syd

Central Provinces (Reported by Mr J. F. Dastur, Mycologist Nagpur)

*Piper betle*

*Pythium piperinum* Dastur sp.

*Phytophthora parasitica* var *piperina* Dastur nov. var.

*Citrus* sp.

*Sphaceloma faucei* Jenkins scab. Spraying with Bordeaux mixture has been found effective.

*Pseudomonas citri* Hasse canker. Can be controlled by sprayings with Bordeaux mixture.

Greasy spot, a 'Black melanose' a physiological disease.

*Arachis hypogaea*

*Cercospora personata* (B. and C.) E. and E.

*Cercospora arachidicola* Hott.

Both can be controlled by spraying with Bordeaux mixture or Bouisol.

Burma (Reported by Mr. U. Thet Su, Mycologist, Mandalay).

<i>Saccharum officinarum</i>	<i>Cercospora kopkei</i> Krug.
<i>Aleurites fordii</i>	<i>Diplodia theobromae</i> Pat.
<i>Brassica oleracea</i>	<i>Alternaria circinans</i> Bolle.
<i>Triticum vulgare</i>	<i>Septoria</i> sp.
<i>Borassus flabellifer</i>	<i>Thielaviopsis paradoxa</i> v. Höhn.
<i>Trigonella foenum-graecum</i>	<i>Cercospora traversiana</i> Sacc.
<i>Citrus aurantium</i>	<i>Penicillium italicum</i> Weh.
<i>Areca catechu</i>	<i>Thielaviopsis</i> sp.
<i>Hordeum vulgare</i>	<i>Helminthosporium teres</i> Sacc.
	<i>Helminthosporium sativum</i> P. K. and B.
	<i>Puccinia graminis</i> Pers.
<i>Coriandrum sativum</i>	<i>Erysiphe polygoni</i> D. C. (Oidial stage).
<i>Mangifera indica</i>	<i>Oidium ervsiphoides</i> Fr.
	<i>Dothiorella</i> sp.
<i>Sesamum indicum</i>	<i>Phoma</i> sp.

Punjab (Reported by R. S. Jai Chand Luthra, Professor of Botany, Agricultural College, Lyallpur).

<i>Pennisetum typhordeum</i>	<i>Striga</i> sp. - a root parasite.
<i>Medicago sativa</i>	<i>Cuscuta planiflora</i> , dodder.
<i>Mangifera indica</i>	<i>Gloeosporium</i> sp.

Bengal (Reported by the Economic Botanist, Dacca).

<i>Nicotiana tabacum</i>	<i>Sclerotium rolfsii</i> .
<i>Arachis hypogaea</i>	<i>Rhizoctonia</i> sp.
	<i>Sclerotium rolfsii</i> .
<i>Saccharum officinarum</i>	Pokkah-bong caused by <i>Fusarium</i> sp.

### Southern Rhodesia: Locust Invasion, 1932-1935 (1).

The locust position has remained quiet throughout April, 1935.

The only species recorded is the Red Locust (*Nomadacris septemfasciata*, Serv.). The first adults of the new generation were reported on the 9th of the month in the Gwelo district, and another swarm was recorded in Salisbury district on the 12th. A few other swarms have since been reported in various districts, making a total of about nine swarms. Most of these are stated to be of large size. Information in regard to direction of flight has mostly been lacking. Probably the swarms have not as yet taken any particular direction.

(1) Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. F. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

Specimens, which had died from *Empusa*, have been received on two instances from the Mazoe district. In one case the whole swarm is stated to have settled and failed to rise again.

The appearance of adults of the new generation is much later than in 1934, when newly matured fliers were reported as early as February 24th. It would appear that only the later hatchings have matured, due possibly to subsidence of *Empusa* activity with the dry period, which commenced about the end of the first week in February.

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**Red Locust, *Nomadacris septemfasciata*.** A few swarms of the Red Locust have been reported in different parts of the Colony during May, 1935 but most of these are stated to have been of large size.

Swarms which probably originated in Portuguese East Africa have been haunting the region of the eastern border in the southern uplands of the Melsetter district penetrating at times as far west as the Sabi River Valley. Other districts involved include Lomagundi, Inyanga, Marandellas, Gwanda, Mazoe, Darwin, Hartley and Chibi.

No reports of disease amongst locusts have been received and swarms examined personally in the Melsetter district appeared to be quite healthy, in spite of unusually humid weather for the time of year.

A small band of hoppers was reported in the Lomagundi district as late as the 3rd.

The position generally is, therefore, comparatively quiet but, if favourable weather conditions occur next spring, there are obviously sufficient numbers of the Red Locust in the swarm phase in this Colony and adjacent territory to initiate another period of increase, and the outlook at present must be regarded as uncertain.

**Brown Locust, *Locustana pardalina*.** Several reports have described the locust swarms seen as 'brown' but no specimens so described have been received at Headquarters. The districts in reference have also been remote from the western border and it appears improbable that any swarms of the real Brown Locust have as yet invaded the Colony.

## LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Germany (Schaumburg-Lippe).** — The Decree of 22 May, 1935, relative to the public establishments for seed disinfection, prescribes measures analogous to those already adopted for the department of Hanover [see this *Bulletin*, 1935, No. 7, p. 157]. (*Ämliche Pflanzenschutzbestimmungen*. Berlin, 1. Juni 1935, Bd. VII, Nr. 6, S. 94).

**Argentine Republic.** — The Decree No. 49,931 of 8 October, 1934, modifies the Decree No. 30,362 of 28 October, 1933, concerning the quantity of barriers that may be delivered on loan free of charge to the agricultural syndicates established for the collective control of the South American locust [*Schistocerca paranensis*]. (*Boletín Oficial de la República Argentina*, Buenos Aires, 28 de enero de 1935, año XLIII, núm. 12,187, pág. 1075).

\*\*\* By Decree No. 55,058 of 19 January, 1935 the Decree No. 45,741 of 21 July, 1934 [see this *Bulletin*, 1934, No. 12, p. 276] is effective on and after 15 September, 1934. (*Ibid.*, 9 de mayo de 1935, núm. 12,267, pág. 280).

**Austria.** — By Ministerial Decree No. 58 (undated) authority is given, until further orders, to import, by railway, potatoes coming from the following countries which are recognised as being free from wart disease [*Synchytrium endobioticum*]: — Egypt, Italy, Yugoslavia, Malta, Cyprus, Spain, Hungary. (*Bundesgesetzblatt für den Bundestaat Österreich*, Wien, 21. Februar 1935, Jahrg. 1935, 17. Stück, S. 108).

**Denmark.** — The Decrees No. 31, 32 and 34, also the Regulation No. 33, dated 22 February, 1935, apply to the importation of plants, parts of plants and potatoes and the sanitary inspection over the importation of the latter. The above plant products should be free from wart disease (*Synchytrium endobioticum*), eelworm (*Heterodera rostochiensis*), and Colorado beetle (*Doryphora* [*Leptinotarsa*] *decehlineata*). (*Lovtidenden A.*, København, 2. Marts 1935, Nr. 3, sid. 31-42).

**Eritrea.** — By Decree of the High Commissioner for the East African Colonies No. 7144, dated 13 April, 1935, the introduction into and transit through Eritrea of plants, parts of plants and bunches of bananas is prohibited. This prohibition does not apply to bunches originating from Italian Somaliland. (*Bolettino Ufficiale del Governo dell'Eritrea*, Asmara, 30 aprile 1935, anno XLIV, n. 8, p. 108).

**United States of America.** — Amendment No. 1 to revised rules and regulations supplemental to Notice of Quarantine No. 63 on account of the white pine blister rust [*Cronartium ribicola*], approved on 9 March and effective on 15 March, 1935, adds Minnesota to the States which have legally established blister rust control areas. A control-area permit is therefore now required before shipping currant and gooseberry plants [*Ribes* spp.] to Minnesota. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Modification of White Pine Blister Rust Quarantine Regulations*, Washington, 1935, 2 pp.).

**Finland.** — By the Law No. 53 of 25 January, 1935, the Law of 5 June, 1925, concerning the protection of plants, has been modified. (*Finlands Författningssamling*, Helsingfors, 28 januari 1935, N:o 47-61, sid. 161).

\*\*\* The Decree No. 71 of 8 February, 1935, concerns the capture of the musk rat [*Fiber zibethicus*]. (*Ibid.*, 11 february 1935, N:o 86-72, sid. 211).

**France.** — A Ministerial Decree of 29 April, 1935, provides for the exaction of an inspection tax for certain imports subject to phytopathological control. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1<sup>er</sup> mai 1935, année 1935, n° 9, p. 196).

\*\*\* By Ministerial Decree of 29 April, 1935 a Commission is instituted at the Cereal Service of the Ministry of Agriculture for the purpose of studying suitable measures for the protection of reserve stocks against damage caused by rodents and insects. (*Ibid.*, 15 mai 1935, n° 10, p. 207).

\*\*\* The Ministerial Decree of 10 May, 1935, contains regulations for consignments of potatoes of the new harvest gathered in areas infested by the Colorado beetle [*Leptinotarsa decemlineata*] and in protected areas and destined for uninfested regions in France or departments over-seas, colonies and protectorats, during the period from 15 May to 25 September.

Conditions are also established under which consignments of tubers from the previous year may be sent to regions uninfested by the Colorado beetle.

This Ministerial Decree is accompanied by model authorisations for consignment to be issued, as the case may be, by the president of the syndicate for the protection of crops against pests, or by the president of the syndicate of potato merchants. (*Ibid.*, 15 mai 1935, n° 10, p. 210-211).

\*\*\* By Ministerial Decree of 15 May, 1935 modifying the Ministerial Decree of 13 April 1934 [see this *Bulletin*, 1934, No. 6, p. 129] control may be exercised over seed potatoes cultivated by farmers who are members of an agricultural syndicate legally constituted for the purpose of sanitary selection on the spot, the statutes of which have been previously approved by the Administration and which was given proofs that the said farmers have, for at least 5 years, successfully practised the genealogical selection of potatoes utilising seeds from genealogical selection produced by the syndicate.

The present Ministerial Decree is followed by the technical regulation dated 13 April, 1934 [see this *Bulletin*, 1934, No. 6, p. 129], also modified, and relative to requests for admission to official control, to registration of cultivations admitted to control, and to technical instructions for this control. (*Ibid.*, 1<sup>er</sup> juin 1935, n° 11, p. 243-245).

\*\*\* According to Article 3 of the trade and navigation treaty between the French Republic and the Kingdom of the Netherlands, published and brought provisionally into force by Decree of 29 May, 1935, the high contracting parties engage to in no way hinder the exchange of merchandise either by prohibitions or restrictions on importation or exportation. Exceptions, however, may be made for reasons of sanitary policy with a view to assuring, *inter alia*,

the protection of plants against diseases or parasites and in as much as these prohibitions or restrictions are at the same time applicable to all other countries in similar circumstances. (*Ibid.*, p. 239-243).

**Italy.** — By Ministerial Decree of 5 April, 1935, the control of the oriental peach moth (*Cydia* [*Laspeyresia*] *molesta*) has been made compulsory in the provinces of Ravenna and Forlì, the same measures to be applied as already adopted for other provinces by the Ministerial Decree of 12 February, 1935, [see this *Bulletin*, 1935, No. 5, p. 115]. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 21 aprile 1935, anno VII, n. 12, pp. 1792-1793).

\*\*\* By two Ministerial Decrees of 6 April, 1935, and by virtue of Article 17 of the Law No. 987 of 18 June, 1931 containing measures for the defence of cultivated plants and agricultural products against adverse conditions, and for the organisation of services relative thereto [see this *Bulletin*, 1931, No. 9, p. 166], compulsory Syndicates for the improvement and development of fruit-growing in the provinces of Padua and Venice have been established.

The annual contribution payable by each member of the Syndicate cannot exceed 10 centesimi per fruit tree in bearing. (*Ibid.*, pp. 1794-1796).

\*\*\* By another Ministerial Decree of the same date, and by virtue of the Royal Decree-Law No. 1754 of 12 August, 1927 containing measures for the development of olive-growing, also the Law No. 987 of 18 June, 1931, a compulsory Syndicate for the improvement and development of olive-growing has been established in the province of Catanzaro.

The contribution payable by each member of the Syndicate cannot exceed 10 centesimi per olive tree in bearing. (*Ibid.*, pp. 1798-1799).

\*\*\* By Ministerial Decree of 9 May, 1935, in the commune of Irgoli di Galtelli, province of Nuoro, the wild boar is included for the time being among noxious animals to the extent that the numbers may be reduced by means of two drives carried out according to established methods (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 15 maggio 1935, anno 76<sup>o</sup>, n. 114, p. 2270).

\*\*\* The Ministerial Decree of 4 May, 1935, modifying the special, technical regulations on the exportation of peaches, establishes, *inter alia* that it is prohibited to despatch rotten fruit or fruit attacked by the 'mal della scatola' discernible from the outside. (*Ibid.*, 29 maggio 1935, n. 126, pp. 2624-2628, 4 figg.).

\*\*\* By Ministerial Decree of 15 May, 1935, a competition, based on qualifications and tests, has been organised for the obtaining of 8 bursaries for continuation studies in Plant Pathology and Agricultural Entomology at

the Royal Institutes for research and experimentation in Phytopathology or also at the Royal Observatories for plant diseases. (*Ibid.*, 27 maggio 1935, n. 124, p. 2556).

\*\*\* By Ministerial Decree of 16 May, 1935, and by virtue of the Royal Decree-Law No. 1754 of 12 August, 1927 containing measures for the development of olive-growing, also the Law No. 987 of 18 June, 1931 a compulsory Syndicate for improving and developing olive growing has been established in the province of Siracusa.

The contribution payable by each member of the Syndicate cannot exceed 10 centesimi per olive tree in bearing. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1° giugno 1935, anno VII, n. 16, pp. 2481-2482).

\*\*\* By Ministerial Decree of 17 June, 1935, the control of the olive fly [*Dacus oleae*] by means of arsenical spraying has been made compulsory in the province of Livorno.

The compulsory Syndicate for the improvement and development of olive-growing in the said province is entrusted with the organisation and supervision of the control which should be carried out by and at the expense of owners or olive groves existing in that region. In addition, the Syndicate will carry out these operations at the expense of contraveners or defaulters. (*Pagine Agricole*, Livorno, giugno e luglio 1935, anno XIX, nn. 6 e 7, p. 19).

\*\*\* A Ministerial Decree of 12 July, 1935, established the rules to be followed, from the phytosanitary view point, for the temporary importation from abroad of potatoes exclusively intended for planting for the season 1935-1936. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 15 luglio 1935, anno 76°, n. 163, pp. 3559-3561).

**Morocco (French Zone).** — By Vizirial Decree of 20 May, 1935 (26 safar 1354), the Vizirial Decree of 20 September 1927 (23 rebia I 1346) regulating the importation of cotton seed into Morocco and establishing the sanitary control of cotton-growing, is repealed. (Empire Chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 21 juin 1935, XXIV<sup>e</sup> année, n° 1182, p. 680).

**Peru.** — By 'resolución' of 14 February, 1935, the valleys of Locumba, Cinto and Ilabaya in the department of Tacna and the valley of Moquegua are declared infested by grape phylloxera (*Phylloxera vastatrix*). In consequence, it is prohibited, in these valleys, to extract vine plants and cuttings intended for any other part of the Republic. It is also prohibited to transport vine plants and cuttings from infested zones to non-infested zones of the same valley except by the means that are adopted with regard to the reconstitution of vineyards. This prohibition is extended to any plant which grows between the infested zones. The vines attacked by grape phylloxera in the valleys of Locumba,

Cinto and Ilabaya should be completely destroyed in accordance with the regulation relative to this matter. The Chief of the Entomological Department of the Agricultural Experiment Station of 'Ia Molina' and the Chief of the Viticultural and Oenological Section of the National School of Agriculture and Veterinary Science have been charged with visiting the valleys of Locumba, Tacna and Moquegua, to ascertain the presence or absence of grape phylloxera in Tacna, to study the extent of the infestation in the valleys of the province of Locumba and to present a scheme for reconstitution and protection of vineyards in Locumba and Moquegua, also Tacna, if these prove to be infested. (*El Peruano*, Lima, 20 de abril de 1935, año 95, tomo I, trimestre II, no 85, pág. 339).

\* \* The presence of 'arrehiatado' (*Dysdercus ruficollis*) and 'gorgojo de la chupadera' (*Gasterocercodes gossypii*) in the valley of Piura having been ascertained, it is prohibited, by 'resolución' of 8 March, 1935, to cultivate cotton shoots in the whole of this valley. With the object of obtaining a fallow period - completely free from cotton plants - growers should destroy, in the valley of Piura, all cotton plants by extracting and burning the roots before 31 December of each year. The presence of cotton plants of the variety 'Pais' is also prohibited in the valley of Piura (*Ibid*, 24 de abril de 1935, No. 88, pág. 352).

\* \* The Resolution of 23 March, 1935, establishes that the Supreme Resolution of 15 January, 1931 declaring the valley of Moquegua a zone free from fruit fly (*Anastrepha* sp.) remains in force and consequently in all its effects (*La Vida Agrícola*, Lima, mayo de 1935, vol XII, no. 138, págs 371 y 372).

\* \* The Resolution of 12 April, 1935, approves the regulation of the Supreme Resolution No. 41 of 8 March, 1935 containing rules for cultivating cotton in the valley of Piura in relation to the pests 'arrehiatado' (*Dysdercus ruficollis*) and 'gorgojo de la chupadera' (*Gasterocercodes gossypii*) (*Ibid*, págs 368-369).

**Sweden.** — The Royal Decree No. 127 of 26 April, 1935, contains measures concerning the eradication of barberry bushes (*Berberis*) on certain land. (*Svensk Lorfattningssamling*, Stockholm den 27 april 1935, Nr 127, sid. 277-278).

**U. S. S. R.** — By Verbal Note of the People's Commissary for Foreign Affairs, dated 7 April, 1935, concerning the prevention of the introduction of plant diseases and pests, the importation of citrus fruits (oranges, mandarines, and lemons) by the ports on the Black Sea is prohibited. (*Deutsches Handels-Archiv*, Berlin, 1. Juli 1935, 89. Jahrg, 1. Juliheft, S 2214).



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[Several herds of musk rats (*Fiber zibethicus zibethicus*) having been observed in France the 'Service des Vertébrés du Centre national de Recherches agronomiques', Versailles, has studied the means of controlling this noxious rodent, which is new among French fauna.]

The present pamphlet includes two parts. In the first is given an account of the biology of the musk rat. The second part is devoted to the methods of control employed in France and Germany, to the collection of the skins of the musk rat, also the legislation and regulation of the control of this rodent in France, Central Europe, Switzerland and Great Britain].

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Among these may be recorded — *Agromyza fabalis*, a widespread pest of cow-peas and haricot beans, *Anatrichus erinaceus* at larval stage in the stems of Kaffir corn (Sorghum), *Epimadiza hirta*, a pest of gladiolus, *Scolioptthalmus obliquus* at larval stage in the stems of Kaffir corn, *Acanthophila immigrans* feeding on the liquids exuding from fallen fruits, *Zaprionus vittiger* breeding in decaying fruits and often occurring in dwelling houses and fruit shops, *Stomorhina lunata*, a locust egg predator, *Helicobia munroi* at larval stage in bodies of dead red locusts (*Nomadacris septemfasciata*), *Sarcophaga villa* in the dead bodies of red locusts, *Pachyophthalmus signatus*, a widely distributed parasite of mud-wasps (*Sceliphron* and *Synagris*), *Phorocera seminitida*, a host of Noctuid larvae (? *Heliothis obsoleta*) in fruit of a wild Malvaceous plant, *Sturmia larva*, a host of *Cirphis loreyi* in fields of barley and wheat, etc.]
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[*Chrysanthemum cinerariaefolium*, *Tephrosia vogelii*, *T. toxicaria*, *T. candida*, *T. noctiflora*, *Tephrosia* sp. (*T. nyikensis* ?), *Cassia didymobotrya*, *Derris elliptica*, *Lonchocarpus* sp., *Paullinia pinnata*, *Calophyllum inophyllum*, *Euphorbia tirucalli*, *Hydnocarpus wightiana*, *Acokanthera longiflora*, *Dichapetalum ruhandii*, *Barringtonia racemosa*].

## NOTES

**The Third International Congress of Compared Pathology.** — The dates of this Congress have been definitely fixed for 15, 16, 17 and 18 April, 1936 at Athenes, Greece. The Congress will discuss, *inter alia*, questions of Plant Pathology and the possible relations between certain plant and animal diseases. Immunity of plants will be included among the subjects on which special reports will be presented.

**The Second International Congress of Microbiology.** — In this Congress, which will take place at London from 25 July to 1 August, 1936, will be discussed, *inter alia*, the virus diseases of plants, bacteria and fungi as plant parasites also agricultural Zoology and Parasitology.

# INTERNATIONAL BULLETIN OF PLANT PROTECTION

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## DISCOVERIES AND CURRENT EVENTS \*

### French North Africa: Locust Invasions during the First Half of the Year 1935 (1).

The hatching of Moroccan Locusts (*Dociostaurus maroccanus*) was reported in Algeria in the first days of April, 1935, in the following regions:—

#### Oran Department:—

Sfissef Douar, Mixed Commune of Mekerra.

Hounet and Aïoun el Beranis Douars, Mixed Commune of Saïda.

Aïn Tiddès and Tagremaret Regions, Mixed Commune of Frenda.

#### Algiers Department:—

Zahrez Chergui Region, Mixed Commune of Aïn-Boueif.

Ouled Ahmeur Douar, Mixed Commune of Bou Saâda.

Aziz, Boughzoul, and M'Fatah Douars, Mixed Commune of Boghari.

Oussera Douar, Mixed Commune of Chellala.

In general, the hopper groups reported were composed of a few individuals and did not show any definite gregarious characteristics except in the different outbreak centres in the Algiers Department.

It was endeavoured, during the month of April and May, 1935 to follow the life cycle of the locusts everywhere and to ascertaining the smallest signs of gregarious nature which were controlled by poisoned baits.

The search for and inspection of larval bands was entrusted to young men who had finished their fairly advanced scientific studies ('Ingenieur' of the Agricultural Institut of Algiers for the most part) and who at the same time had made observations of a biological nature.

The system of scouting adopted has proved to be very efficient and at the same time permits the first manifestations of a gregarious nature to be noted in the Constantine Department (Barika, Bélezma, Aïn M'Lila Regions).

\* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the Government General of Algeria, Direction des Services économiques to the International Institute of Agriculture.

In this way all the hopper groups have been broken up. The fugatives and individuals arrived at the adult stage are at present under observation in order to determine the exact outbreak centres and thereby the areas to be closely observed the following year.

\* \* \*

From 1 October, 1934, to 1 July, 1935, French North Africa has been completely free from all invasions by Desert Locusts (*Schistocerca gregaria*).

## French West Africa: Diseases of Plants Cultivated in the Ivory Coast (1).

### I. INDUSTRIAL TREES AND SHRUBS.

#### (1) COFFEE.

*Fomes lignosus* Klotzch.  
*Fomes lamaoensis* Murrill.  
*Ganoderma* sp.  
*Heterodera radiculicola* Greeff.  
*Cercospora coffeicola* Berk. and Cooke.  
*Leptosphaeria coffeicola* Del.  
*Sphaerella coffeicola* Cooke.  
*Gloeosporium coffeanum* Del.  
 A undetermined species of Deuteromycetes.  
*Cephaleuros virescens* Kuntze.  
*Marasmius scandens* Massee.  
*Corticium koleroga* (Cooke) von Höhnel.  
*Trachysphaera fructigena* Tabor and Bunting.  
*Loranthus lanceolatus* Beauv.  
*Angraecum* sp.

#### (2) CACAO.

*Armillariella mellea* (Wahl) Pat.  
*Lasiodiplodia theobromae* (Pat.) Griff. and Maubl.

*Corticium salmonicolor* B. and Br.  
 A disturbance of physiological cause. . .  
*Colletotrichum brachytrichum* Del.  
*Phyllosticta theobromae* d'Alm. and S. da Cam.  
*Cephaleuros virescens* Kuntze.  
*Phytophthora palmivora* Butl.  
*Trachysphaera fructigena* Tabor and Bunting.  
*Nectria* sp.  
*Colletotrichum* sp.  
*Marasmius scandens* Massee.  
*Marasmius equicrinis* Müll.  
*Loranthus lanceolatus* Beauv.

#### (3) OIL PALM.

A undetermined species of Perisporiaceae.  
*Pestalozzia palmarum* Cooke.  
*Ganoderma applanatum* Persoon.

#### (4) COCONUT.

*Pestalozzia palmarum* Cooke.

(1) Communication from the official correspondent of the Institute, Mr. A. MALLAMAIRE, Colonial Agronomy Ingénieur, Director of the Phytopathological Laboratory, La Mé, Ivory Coast, transmitted to the Institute by the Government General of French West Africa.

(5) KOLA.

*Cephaleuros virescens* Kuntze.  
*Nectria* sp.  
*Lasiodiplodia theobromae* (Pat.) Griff.  
 and Maubl.  
*Marasmius equicrinis* Müll.  
*Loranthus lanceolatus* Beauv.

*Lasiodiplodia theobromae* (Pat.) Griff.  
 and Maubl.  
*Pseudomonas* (*Bacterium*) *malvacearum* E. F. S.  
*Sclerotium* sp.  
*Uredo* (*Kuehneola*) *gossypii* Lag.  
*Ramularia areola* Atk.  
 A virus disease.  
*Glomerella gossypii* Edgerton.

(6) COTTON.

*Bacterium* sp.  
*Phoma roumii* Fron.

(7) CASTOR OIL PLANT.

*Sclerotium* sp.  
*Oidium* sp.

II. FRUIT CROPS.

(8) BANANA.

*Gloeosporium musarum* Cooke and Massee.  
 ? *Pseudomonas musae* Gäumann.  
*Marasmius stenophyllus* Mont. (*M. semiustus* Berk. and Cooke).  
*Tylenchus (musicola)* Cobb.  
*Lasiodiplodia theobromae* (Pat.) Griff.  
 and Maubl.

*Verticillium* sp.  
*Fusarium* sp.

(9) PINEAPPLE.

A undetermined species of Deuteromycetes.

(10) LEMON.

*Ganoderma applanatum* Persoon.

III. FOOD CROPS.

(11) PLANTAIN.

Same diseases as the banana; but is more resistant.

(14) YAM.

*Cercospora* sp.

(12) MANIOC.

*Cercospora cassavae* Ell. and Ev.  
*Mycosphaerella manihotis* (Syd.) Ghesq.  
*Colletotrichum manihotis* Henn.  
 A virus disease.

(15) MAIZE.

*Ustilago maydis* (DC.) Corda.  
*Diplodia zeae* (Schw.) Lév.  
*Helminthosporium turcicum* Pass.

(13) TARO.

*Cercospora* sp.  
*Phyllosticta oolocasiae*.  
*Pythium aphanidermatum* (Eds.) Fitz.

(16) GROUNDNUT.

*Cercospora personata* Ellis.  
 A virus disease.  
*Sclerotium* (*Corticium*) *rolfsii* (Sacc.) Curzi.  
*Colletotrichum* sp.

## IV. LEGUMINOUS COVER PLANTS.

- (17) *Tephrosia candida*.  
*Lasiodiplodia theobromae* (Pat.) Griff.  
 and Maubl.  
*Loranthus lanceolatus* Beauv.
- (18) *Tephrosia ehrenbergiana*.  
*Meliola bicornis* Wint. var. *tephrosiae*  
 Beeli.
- (19) *Mucuna utilis*.  
*Cercospora mucunae* Syd.  
*Sclerotium (Corticium) rolfsii* (Sacc.)  
 Curzi.
- (20) *Centrosema plumieri*.  
*Bacterium* sp.  
*Sclerotium* sp.
- (21) *Cassia hirsuta*.  
*Sclerotium* sp.

## V. VEGETABLES

- (22) TOMATO.  
*Cladosporium fulvum* Cooke.  
*Bacterium briosii* Pavar.  
*Tylenchus* sp.  
*Heterodera radiculicola* Greeff.
- (23) BEANS.  
*Isariopsis griseola* Sacc.  
*Sclerotium* sp.  
*Sclerotium (Corticium) rolfsii* (Sacc.)  
 Curzi.
- (24) CABBAGE.  
*Alternaria brassicae* (Berk.) Sacc.  
*Sclerotium* sp.  
*Bacterium* sp.  
*Heterodera radiculicola* Greeff.
- (25) CELERY.  
*Septoria apii* (Br. and Cav.) Rostr.  
*Cercospora apii* Fr.  
*Bacterium* sp.  
*Sclerotium (Corticium) rolfsii* (Sacc.)  
 Curzi.
- (26) ASPARAGUS.  
*Fusarium* sp.
- (27) EGG PLANT.  
*Tylenchus* sp.  
*Heterodera radiculicola* Greeff.
- (28) CARDOON.  
*Sclerotium* sp.
- (29) VARIOUS SALADES.  
*Heterodera radiculicola* Greeff.
- (30) TURNIP.  
*Sclerotium* sp.  
*Bacterium* sp.
- (31) CARROT.  
*Heterodera radiculicola* Greeff.
- (32) INDIAN SPINACH (*BASELLA RUBRA*).  
*Heterodera radiculicola* Greeff.



### **Egypt: Locust Report from May, 1934 to August, 1935 (1).**

Since our last report on the locust situation in Egypt (see this *Bulletin*, 1934, No. 7, p. 150), no desert locust (*Schistocerca gregaria*, Forsk.) was observed in the country.

Sinai was lately inspected and even solitary forms were not observed.

### **Eritrea: Locusts (2).**

During the month of July, 1935, no locusts have been reported in the Colony.

### **Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (3).**

A p r i l, 1935.

In the whole of the Colony the control of the hoppers is being terminated. Thousands of bands have been destroyed and many tons of hoppers have been collected.

Information received from all the districts and from the Mozambique Company shows that the situation is much better on account of the reduced number of hopper bands observed and also on account of the intense control carried out and the destructive action of parasites, particularly *Empusa grylli*.

In the districts of Quelimane and Tete swarms have been observed originating from the uninhabited regions, also other swarms proceeding from Nyasaland. These swarms generally flew towards the North arriving at the the Sout-Rastern circumscriptions of the Mozambique district.

In the district of Inhambane the first swarms were reported on 3 and 10 April. These swarms later on flew away towards the North. \*

In the district of Lourenço Marques several swarms appeared proceeding from the territory of the Union. At Guijé another swarm passed over, flying from West to East though on the same day the swarm changed its direction and flew from East to West. In the region of Manjacaze a swarm passed over at the beginning of April flying towards Chibuto.

(1) Communication from the Director of the Entomological Section, Ministry of Agriculture, Egypt to the International Institute of Agriculture.

(2) Communication from the official correspondent of the Institute, Dr. ROLANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

(3) Communication from Mr. JULIO GARDÉ ALFARO CARDOSO, Chief of the Entomological Section, Lourenço Marques, Mozambique, transmitted to the Institute by the Repartição Técnica de Agricultura of the Colony.

In the middle of April several small dispersed swarms were reported in various localities. A large swarm passed over the region of Manhiça and flew towards Sabié.

On the southern frontier swarms continue to enter proceeding from Zululand and the same phenomenon has been reported on the Swaziland frontier.

In conclusion it may be said that the situation in general has improved and that the few swarms originating from the hoppers which it was impossible to destroy, being in uninhabited regions, have concentrated so as to form large invading swarms, several of which are flying towards the North.

May, 1935.

The control of hoppers is terminated. The general situation, compared with the preceeding year, has improved, principally in the districts in the North. In the Mozambique district no locust movements have been observed, in Tete and Barué, close to the frontier, and also in Southern Rhodesia, several swarms proceeded from the South towards the North or West.

In the Southern districts, Inhambane and Lourenço Marques, large swarms have been observed proceeding from the North; without doubt some of these swarms were formed in the great, almost deserted, plains of Vilanculos, Panda, and Guijá and continued towards the Transvaal including the zone reserved for hunting. After the swarms were united they were carried by the North wind towards the coast where they turned off towards the West, the swarm split up and when the wind changed flew towards the South and then returned Northwards.

A swarm of this origin passed over the city of Lourenço Marques on 10 May and one of its sub-divisions on 14 May. The greater part of the swarm remained for a certain time in Moamba.

Swarms continue to cross and recross the frontiers of Zululand and Swaziland.

The locusts are still being decimated by parasites. In the swarm which settled in the city the percentage of insects attacked was large. After the locusts took flight thousands were observed to be attacked by *Sporotrichum* (characterised by the greenish purple colour) and by a *Bacillus* (recognisable by the characteristic colour of the abdomen).

The mortality was great from *Empusa grvlli* (the locusts attacked become whitish in colour and die on the plants). Neither worms nor Diptera were observed in this swarm.

## LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Germany.** — By Notification of 15 May, 1935, it is announced that Turkey has adhered to the International Convention for grape phylloxera of Bern, as from 1 March, 1935. (*Amliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1935, Bd. VII, Nr. 7, S. 99).

\*\* By Decree of 20 May, 1935 and with a view to preventing the introduction of the cherry fruit fly [*Rhagoletis cerasi*], a new list of customs posts has been established which are authorised to accept consignments of fresh cherries intended for importation. The present Decree came into force on 1 June, 1935. (*Ibid.*, S. 100-101).

\*\* By Decree of 20 May, 1935, for the purpose of preventing the introduction of wart disease of potatoes [*Synchytrium endobioticum*], it is prohibited to import potatoes by customs posts other those expressly authorised for this purpose the list of which, newly established, is attached to the present Decree. (*Ibid.*, S. 101-102).

\*\* By Ordinance No. 8 of 20 June, 1935, new regulations have been established relative to the trade in potatoes.

These regulations make a clear distinction between potatoes for consumption and those intended for planting.

With regard to the potatoes for consumption, the provisions are mostly of a phytosanitary nature.

With regard to wet rot, damage caused by frost, dry rot, blight [*Phytophthora infestans*], injured and worm eaten tubers, deformed and green tubers, the maximum limits which should not be exceeded are fixed by the Ordinance of 14 August, 1934 [see this *Bulletin*, 1934, No. 11, pp. 247-248].

Potatoes showing marks of rust ('Eisenfleckigkeit') should be tolerated up to 6 % of the weight; those showing black marks up to 10 % of the weight.

The limit for scab ('Schorf') which should be tolerated is fixed at 4 % of the weight; the tubers, however, which are only lightly marked by scab so that their appearance is not adversely affected and so that when peeled the deterioration does not cause loss in weight, are considered as free from scab.

Samples of potatoes recognised as being attacked by wart disease [*Synchytrium endobioticum*] should be immediately sent to the nearest Plant Protection Station. The consignment will be returned.

The lots of potatoes exceeding the defined limits should be examined again. If, however, the deterioration exceeding the fixed limits is due to marks of rust or black marks, the potatoes cannot be considered as potatoes for consumption and should accordingly returned.

In cases of disagreement over merchandise on arrival an expert should be called in to give judgement on the extent of the deterioration determined by him. The merchandise should accepted as it stands if the total deterioration does not exceed 10 % of the value, provided that none of the limits indicated are exceeded. The strictest measures are applicable when the maximum limits are exceeded. If the total deterioration exceeds 10 %, the potatoes should be compulsorily subjected to another examination. It is, however, prohibited to select potatoes that have been declared by an expert to be industrial or forage potatoes, for the purpose of afterwards selling them as potatoes for consumption.

The determination of deterioration not exceeding the limits mentioned cannot result in a diminution in price.

When the potatoes in question are intended for planting, a distinction is made between recognised choice potatoes and ordinary commercial potatoes. The prescriptions which apply to choice potatoes are naturally the strictest and are as follows:—

Serious injuries (affecting the sprouting power) are tolerated up to 1.5 % of the weight; 1.5-3 % results in a diminution in price.

Diseased potatoes (excepting damage caused by wet rot and frost) are tolerated up to 1 %; 1-2 % results in a diminution in price.

Potatoes damaged by wet rot or frost are tolerated at the place of expedition; up to 0.25 to 1.0 %; and up to 2 to 3 % immediately after arrival at the place of destination;.

Consignments infected by wart disease will be returned. Alterations of a serious nature such as rust spots, internal suberous layers ('Pfropfenbildung'), slightly worm eaten appearance of the interior, slight malformations, cracking of the skin ('Schalenrissigkeit'), green tubers and scab not affecting the value of the merchandise as potatoes for planting, do not give the right to claims being made except in cases where the extent of these alterations is great or where it has been expressly stated in the contract of sale that the merchandise should be free from these alterations. Potatoes are considered free from scab if less than 5 % of the surface is covered with marks of scab.

The above mentioned deteriorations, not exceeding the maximum limits, result in a diminution in price; if they exceed these limits or if the total of several deteriorations exceed 10 %, the merchandise may be returned.

An appendix to the present Ordinance gives detailed rules to be followed by experts when judging potatoes. It is established how samples should be taken, what should be considered as deterioration or alteration of less importance is defined. The various diseases and methods for determining them are also defined. Experts are obliged, without delay, to report all cases of powdery scab [*Spongospora subterranea*] and wart disease determined by them.

Special prescriptions refer to the inspection of potatoes for planting intended for export.

All consignments of these potatoes should be inspected by an expert official of the Plant Protection Service at the place where they are packed. The rules established in this respect contain measures even more strict than those mentioned above. Thus, for example, it is established that lots of potatoes having a disagreeable odour of the cellar should be excluded from exportation. It is left to the expert to decide if the potatoes, the surface of which is wet or covered with the remains of compact clay soil, should be passed or not for exportation. The experts should also ascertain whether the consignments are accompanied by certificates from the Corporation of Agriculture ('Reichsnährstand'). Each sack of potatoes should contain a copy of the certificate.

The merchandise cannot be exported unless the expert in charge of inspection has given a favourable opinion and given the exporter a special permit, also the certificate of health and origin required by the importing country. (*Ibid.*, S. 104-118).

**Germany (Oldenburg).** — By Decree of 8 June, 1935, the clearing of all land of thistles, including roads, streets and public places, is made compulsory. The thistles [*Cnicus arvensis*] should be cut down to the root before 15 June of each year. This obligation also applies to tenants of land. (*Ämliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1935, Bd. VII, Nr. 7, S. 119).

**Germany (Saxony).** — By Decree of 27 May, 1935, modifying the prescriptions concerning the sale of toxic preparations used for plant protection, the sales bureaux of the Plant Protection Service and the agricultural corporations should keep special registers in which are entered all sales of these toxic preparations. A model of this register is attached. (*Ämliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1935, Bd. VII, Nr. 7, S. 119-120).

**Germany (Thuringia).** — A Police Ordinance, dated 29 March, 1935, relative to the control of dodder [*Cuscuta*], established that tenants of land in the district of Sonneberg and their representatives should immediately declare the actual or suspected presence of dodder. They should subsequently carry out the measures for control judged necessary by the Plant Protection Service. (*Ämliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1935, Bd. VII, Nr. 7, S. 120-121).

**Argentine Republic.** — The Decree No. 54.285 of 28 December, 1935 contains regulations of the Decree of 3 December, 1930 by which Aleppo grass (*Sorghum halepense*) was declared a plant noxious to agriculture.

According to the above mentioned Decree of 1930 the territory of the Republic is divided into two regions: the region A including the territories situated to the east of the isohyetal line of 500 mm.; and the region B including the territories situated to the west of that line, excluding the irrigated zones.

In region A and the irrigated zones of region B all owners, farmers, tenants or occupiers of every kind of rural property, are obliged to prevent and control the growth of Aleppo grass and to destroy it.

It is forbidden, in all the territory of the Republic, to sow or multiply Aleppo grass.

In region B existing cultivations of Aleppo grass are permitted provided they are not allowed to flower or fructify.

The seeds of Sudan grass (*Sorghum vulgare* var. *sudanense*) and broom corn (*S. vulgare* var. *saccharatum*) being one of the means whereby this weed is propagated, producers of these seeds should apply, within 60 days following the harvest, for inspection by the Ministry of Agriculture; after the samples intended for analysis have been taken and placed in sealed sacks, the seeds will be declared suitable or not for cultivation, and if they do not contain seeds of Aleppo grass a certificate of analysis will be given with the authorisation of the Ministry of Agriculture. The person entrusted with the inspection should determine the absence of Aleppo grass in the field of production.

As soon as they have received the above certificate of analysis, those interested can expedite seed which, however, should be placed in sealed sacks and accompanied by a free pass.

The sacks should be new sacks used for the first time (without repairs).

The railway companies, shipping companies and road transport companies or any person engaged in transport cannot accept consignments of the above mentioned seeds if they are not contained in sacks conforming to the above mentioned conditions and accompanied by a free pass.

Traders may not buy or sell seeds of Sudan grass or broom corn if not accompanied by a certificate of analysis issued by the Ministry of Agriculture.

All seeds of Sudan grass and broom corn declared unsuitable for cultivation, as they contain seeds of Aleppo grass, following the analysis of the inspector, will either be burnt or rendered unsuitable for sowing in the presence of the person detailed for this purpose and who will issue a certificate to that effect in triplicate.

All persons who infringe the provisions of these regulations, who sell directly or through the intermediary of other persons, or who offer for sale seeds of Aleppo grass, will be liable to a fine of from 5 to 1000 'pesos'.

Owners of rural properties, railways, roads, irrigation canals, etc., will also be liable to the same fine:—

(a) who do not prevent or control the growth of Aleppo grass or destroy it;

(b) who allow it to flower in region A and the irrigation zones of region B;

(c) who allow it to fructify in region B;

(d) who transport or sell seeds of Sudan grass or broom corn which do not conform to the above mentioned regulations.

On estates belonging to the State, either national, provincial, or municipal; public establishments, roads, canals and public routes of communication should conform to the rules of the present Decree which should be carried out by the corresponding authorities.

In cases where the owners or occupiers of land do not carry out, within the specified time, the destruction of the weed the officials authorised by the Ministry of Agriculture are charged with applying the established measures and carrying out the destruction at the expense of the owner or occupier with the staff and means that circumstances allow. (*Boletín Oficial de la República Argentina*, Buenos Aires, 21 de mayo de 1935, año XLIII, núm. 12.277, págs. 731 y 732).

\*\*. The Decree No. 54.691 of 12 January, 1935 establishes the procedure to be following with regard to the obligations entered into by farmers who have bought barriers for the control of the South American locust [*Schistocerca paranaensis*] in the years 1933 and 1934. (*Ibid.*, pág. 728).

\*\*\* The Decrees Nos. 55.176 and 55.178 of 23 January, 1935 approved the expenditure of 136,779,70 and 225,356,52 'pesos, respectively for the purchase of adults and eggs of the South American locust [*Schistocerca paranensis*] and for digging ditches and the purchase of insecticides for the destruction of the plague in the year 1934 carried out by the National Bank of Argentina. (*Ibid.*, 6 de junio de 1935, núm. 12.287, pág. 181).

**Scotland.** — The Importation of Raw Cherries (Scotland) Order of 1935, dated 9 May, 1935, prescribes measures analogous to those already adopted for England and Wales [see this *Bulletin*, 1935, No. 7, p. 158<sup>1</sup> for the prevention of the introduction of the cherry fruit fly [*Rhagoletis cerasi*] (*Statutory Rules and Orders*, 1935. No. 436 S. 19, London, 1935, 4 pp).

**United States of America.** — By Amendment No 1 to revised rules and regulations supplemental to Notice of Quarantine No. 64 on account of the Mexican fruit worm [*Anastrepha ludens*], approved on 19 March, 1935, and effective on the same date, are designated as 'regulated area' the counties of Brooks, Cameron, Hidalgo, and Willacy in the State of Texas, including all cities, towns, townships, and other political subdivisions within their limits. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Modification of Mexican Fruit Worm Quarantine Regulations*, Washington, 1935, 1 p.).

**Italy.** — By Ministerial Decree of 10 June, 1935, and by virtue of the Royal Decree Law No. 1754 of 12 August, 1927, containing measures for the development of olive-growing, also the Law No. 987 of 18 June, 1931, containing measures for the protection of cultivated plants and agricultural products [see this *Bulletin*, 1931, No. 9, p. 166] a compulsory Syndicate has been established for the improvement and development of olive-growing in the province of Perugia.

The contribution payable by each member of the Syndicate cannot exceed 10 centesimi per tree in bearing. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1<sup>o</sup> luglio 1935, anno VII, n. 19, pp. 2982-2983)

\*\*\* By Ministerial Decree of 17 June, 1935, the commune of Panicale in the Province of Perugia has been declared infested by grape phylloxera (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 4 luglio 1935, anno 76<sup>o</sup>, n. 154, p. 3367).

**Morocco (French Zone).** — A Decree of 3 June, 1935, authorises the destruction of rabbits causing great damage in the zone of the circumscription of civil control of Beni-Snassen. (Empire Chérifien Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 14 juin 1935, XXIV<sup>e</sup> année, n<sup>o</sup> 1181, p. 655).

**Palestine** (1). — By the Plant Protection Order (No. 4), 1934, dated 30 September, 1934, the Plant Protection Order (No. 2), 1934 shall be amended by the deletion of the paragraph relating to organic manure and soil [see this *Bulletin*, 1934, No. 10, p. 227].

\*\* By the Plant Protection Order, 1935, dated 29 March, 1935, the Plant Protection Order (No. 2), 1934 [see this *Bulletin*, 1934, No. 10, pp. 226-227], as amended by the Plant Protection Order (No. 3), 1934 [see this *Bulletin*, 1935, No. 1, pp. 16-17], shall be amended by the substitution in the place of the words:—

‘ Apples and pears whether nursery stock or fruit from U. S. A., Canada, Australia, Hungary or Rumania ’, appearing in Schedule II thereof, by the words:—

‘ Apples and pears whether nursery stock or fruit from South Africa, Argentine, Australia, New Zealand, Tasmania, Austria, Brazil, Canada, Hungary, India, Yugoslavia, Japan, Mesopotamia, Mexico, Portugal, Rumania, Spain, U. S. A., Chile, China or Hawaii ’.

**Poland.** — The Notification of the Minister of Finance, dated 30 October, 1934, gives the list of plant protection and seed-testing stations authorised to issue certificates of health and origin attesting the absence of seeds of dodder [*Cuscuta*] for imports of plant products from abroad unaccompanied by a certificate from the phytopathological seed-testing services of the exporting country.

The following are authorised to issue the said certificates:— the Chambers of Agriculture of Wilno, Torun, Poznan, Katowice, Lodz, Luck, Warsaw, Krakow, Iwów, Lublin, also the central plant protection service of Danzig Free City and the Chamber of Agriculture of Torun, in cases where importation is made by a customs house situated in the territory of Danzig Free City.

The certificates attesting the absence of seeds of dodder required for consignments of seeds of clover [*Trifolium*], lucerne [*Medicago*], sand clover [*Anthyllis*], sweet clover [*Melilotus*], birdsfoot trefoil [*Lotus corniculatus*] and timothy grass [*Phleum pratense*] may be issued by the seed-testing establishments of the Chambers of Agriculture of Wilno, Cieszyn, Torun, Poznan and Luck, by similar establishments of the Museum of Industry and Agriculture of Warsaw, of the University of Krakow and the Station of agricultural botany of Low. These certificates may be also issued by the Chamber of Agriculture of Torun and by the Agricultural Institute of the Polytechnic School of Danzig in cases where importations are to be made by the customs houses situated in the territory of Danzig Free City. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 2. Marzheft, S. 989).

(1) From documents communicated by the official correspondent of the Institute, Mr. G. BAL-LARD, Government Entomologist, Department of Agriculture and Forests, Jerusalem, Palestine.



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# INTERNATIONAL BULLETIN OF PLANT PROTECTION

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## DISCOVERIES AND CURRENT EVENTS \*

### French West Africa: Plant Pests in the Ivory Coast (1).

#### I. INDUSTRIAL TREES AND SHRUBS

##### (1) COFFEE.

###### Root parasites:—

*Heterodera* (*Caconema*) *radicicola* Greeff.  
*Coptotermes sjöstedti* Holmgren.

###### Nursery parasites:—

*Ophistreptus rugosis* Attems.  
*Pachybolus laminatus* Cooke var. *chevalieri* Brölem.  
*Brachytrypus membranaceus* Drury.

###### Stem and twig parasites:—

*Monochammus sicricola* White.  
*Apate monochammus* F.  
*Xyleborus morstatti* Haged.

###### Leaf parasites:—

*Lecanium viride* Green.  
*Lecanium coffeae* Walk.  
*Pseudococcus citri* Risso (*P. lilacinus* Cooke).  
*Gracilaria coffeifoliella* Mots.

*Adoretus hirtellus* Cash.  
*Zonocerus variegatus* L.  
*Metadrepana glauca* Hmp.  
*Toroptera aurantii* Boyer.

###### Fruit parasites:—

An undetermined Nymphalid.  
*Stephanoderes coffeae* Hag.

##### (2) CACAO.

###### Root parasites:—

*Heterodera radicicola* Greeff.  
*Neotermes* sp.

###### Stem and twig parasites:—

*Mallodon downesi* Hope.  
*Apate monachus* F.  
*Eulophonotus myrmecleon* Feld.  
*Sahlbergella singularis* Hagl.  
*Pseudococcus adonidum* L.  
*Stictococcus* sp.

\* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr. A. MALLAMAIRE, Colonial Agronomy Ingénieur, Director of the Phytopathological Laboratory, I, a Mé, Ivory Coast, transmitted to the Institute by the Government General of French West Africa.

## Leaf parasites:—

*Adoretus hirtellus* Cash.  
*Heliothrips rubrocinctus* Giard.  
*Aphis* sp.

## Pod parasites:—

*Helopeltis* sp.  
*Misotra theobromae* Labois.  
*Ceratitis punctata* Wied.  
 An undetermined weevil.  
*Stictococcus* sp.

## (3) KOLA.

## Stem and twig parasites:—

*Phosphorus jansoni* Toms.

## Leaf parasites:—

*Adoretus hirtellus* Cash.  
*Zonocerus variegatus* L.  
*Lecanium coffeae* Walk.

## Fruit parasites:—

*Balanogastriis kolae* (Desbr. Faust).

## (4) OIL PALM.

## Trunk and bud parasites:—

*Rhynchophorus phoenicis* F.  
*Platygenia barbata* MacLeay.  
*Archon centaurus* F.

## Fruit parasites:—

*Aspidiotus destructor* Sign.  
*Chonaspis* sp.  
 An undetermined weevil.

## (5) COCONUT.

## Trunk and bud parasites:—

*Rhynchophorus phoenicis* F.  
*Archon centaurus* F.

## Leaf and fruit parasites:—

*Aspidiotus destructor* Sign.

## II. FRUIT CROPS

## (6) BANANA.

## Leaf parasites:—

*Aspidiotus destructor* Sign.  
 An undetermined Limacodid.

## (7) PINEAPPLE.

*Pseudococcus* sp.

## (8) CITRUST REES (ORANGE, LEMON, MANDARIN, AND GRAPE FRUIT).

## Fruit parasites:—

*Papilio demoleus* L.  
 An undetermined species of Lepidoptera.

*Pseudococcus citri* Risso.  
*Lepidosaphes citricola* Pack.  
*Toxoptera auranti* Boyer.

## Fruit parasites:—

*Ceratitis capitata* Wied.

## (9) AVOCADO PEAR.

*Aspidiotus destructor* Sign.

## (10) MANGO.

*Mallodon downesi* Hope.  
 An undetermined species of Hemiptera.  
*Heliothrips rubrocinctus* Giard.

### III. FOOD CROPS.

#### (II) MAIZE.

*Sesamia vuterea* Stoll.

*Aphis* sp.

*Eldana saccharina* Walk.

*Calandra oryzae* L.

#### (12) GROUNDNUT.

*Pseudococcus* sp.

White ants (undetermined).

*Aphis laburni* Kalt.

*Decatoma affinis* Oliv.

*Pseudococcus adonidum* L.

*Ceronema africana* Macfie.

*Pachymerus cassiae* Gyll.

#### (13) *Kerstingiella geocarpa*.

*Pachymerus cassiae* Gyll.

#### (14) MANIOC.

*Zonocerus variegatus* L.

*Bemisia* sp.

#### (15) RICE.

An undetermined Noctuid.

*Calandra oryzae* L.

#### (16) SORGHUM.

*Calandra oryzae* L.

#### (17) SWEET POTATO.

*Cylas* sp.

### IV. VEGETABLES.

#### (18) BEANS.

*Anomala* sp.

#### (19) NATIVE SPINACH (*Justicia insularis*).

*Pseudococcus adonidum* L.

### Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (I).

The locust invasion during the months of March and April, 1925, though of a certain importance, were not so intense as in the preceding months.

During the month of March invasions have been observed in the provinces of Luanda (districts of Luanda, Quanza Norte, Congo, Zaire, and Cabinda), Malange (district of Malange), Benguela (districts of Quanza Bul, Benguela, and Huambo), Huila (districts of Huila and Mossamedes) and Bié (districts of Bié and Moxico).

(1) Communication from Mr. JORGE DE BARROS RODRIGUES QUEIROZ, Agronomical Ingénieur attached to the Locust Destruction Service, Luanda, transmitted to the Institute by the Government General of the Colony.

As in the preceding months, the locust control has been carried out in all the invaded districts. The results will be found in the following table:—

PROVINCES	Quantity of eggs destroyed (kilos)	Quantity of larvae destroyed		Bands	Quantity of adults destroyed (kilos)
		kilos	m <sup>2</sup>		
Luanda . . . . .	1,079	44,439	13	761	900
Malange . . . . .	5,000	18,050	—	—	15,000
Benguela . . . . .	164,968	142,051	—	5,240	228,050
Huila . . . . .	5,746	57,036	—	5	200
Bié . . . . .	10,402	60,867	—	—	30,300
Total . . .	187,195	322,453	13	6,006	204,450

To the figures given in this table must be added the quantities of eggs and insects destroyed the weight of which it has not been possible to calculate.

During the month of April, 1935, the invasions have affected the provinces of Luanda (districts of Luanda, Quanza Norte, Zaire, and Congo), Benguela (districts of Huambo, Benguela, and Quanza Sul), Huila (districts of Huila and Mosamedes) and Bié (districts of Bié and Moxico).

The results of the control will be seen in the following table:—

PROVINCES	Quantity of eggs destroyed (kilos)	Quantity of larvae destroyed (kilos)	Bands	Quantity of adults destroyed (kilos)
Luanda . . . . .	21,507	45,439	8,744	4,574
Benguela . . . . .	13,354	584,420	—	45,520
Huila . . . . .	—	51,502	128	2,855
Bié . . . . .	152	56,324	20	10,500
Total . . .	34,993	737,685	8,892	63,449

#### India: *Chrysomphalus aonidum* in the Bombay Presidency (1).

Citrus fruits and leaves were found infested with this scale insect at Shevri in Poona District. Wherever the scales were in great abundance on fruits, these were found being preyed upon by the larvae and adults of a small lady bird beetle.

(1) Communication from the official correspondent of the Institute, Mr. T. N. JHAVERI, Professor of Entomology, College of Agriculture, Poona, Bombay Presidency, India.



# **Palestine: Remarks on Orchard and Vegetable Pests (1).**

Some recent observations on pests of cultivated plants in Palestine are compiled in the following lines:—

Honeydew excretion and sooty mould on citrus have been noticeable in recent years. In Samaria *Icerya purchasi* is the main honey-dew producer and is kept well under control by *Novius cardinalis*. *Saissetia oleae* and *Ceroplastes floridensis* are other sources of honeydew which are more troublesome in the groves of Judaea. They are less injurious than *Icerya*.

*Lepidosaphes beckii* starts to spread into other districts. It has been discovered recently near Jaffa and in the Sharon. Exceptional cases of infestation of citrus by *S. hemisphaerica* and by *C. rusci* have been observed.

The participation of *Pseudococcus citri* in the June drop was relatively heavy during the spring of 1934.

An attack of *Ceratitis capitata*, of previously unknown intensity was suffered over the coast-plain. Heavy fruitfall occurred in September and October, 1934. Fruits dropped but the eggs died in the rind without hatching. But the oviposition lead to the dropping of the fruit. This attack on citrus in the fall was preceded in the summer by an unusually heavy attack everywhere on summer fruits (peaches, apricots, etc.). Plums have been observed attacked by the fruit fly for the first time.

*Prodenia litura* had also an outbreak in summer 1934 and was common on citrus as well as on other crops. In 1933 a local outbreak of *Chloridea obsoleta* was observed in the Sharon. *Papilio machaon* has become a regular guest on citrus.

A survey of the citrus thrips has been made by E. Rivney, and shows that *Heliethrips haemorrhoidalis* and *Thrips tabaci* are the common species. In normal years the damage is negligible and outbreaks like the one of 1931 are isolated occurrences. The red spiders of citrus, which are being studied by H. Klein gain in importance in young citrus groves. *Paratetranychus* sp. and *Epitetranynchus althaeae* are the common species. Among other citrus pests, which called attention in recent years, *Chloridea obsoleta*, *Apate monachus*, *Cryptoblabes gni-diella*, *Ephestia vapidella* and *Vespa orientalis* may be mentioned.

Among other orchard pests the following recent additions are of importance:—

*Hoplocampa* sp. has been encountered in plums at Moza. *Eriosoma lanigera* has developed into quite a pest on apple trees in some villages near Jerusalem. *Parlatoria oleae* is of increasing importance. It infests the fruit of apple, pear, peach, etc., heavily, leading to red spots and discolorations of the fruit; this gives to the fruit a similar aspect to the one resulting from the damage caused by the Pernicious Scale (*Aspidiotus perniciosus*). An unnamed *Rhynchites* is occasionally injurious to pears in the mountains. Two mining moths have been observed for the first time in Palestine. *Recurvaria nanella* in the leaves

(1) Communication from the official correspondent of the Institute, Professor F. S. BODENHEIMER, Hebrew University, Jerusalem, Palestine.

of almonds, apricots, peaches, apple, a. s. o.; and *Lithocolletis spinicolella* in those of almonds.

*Polychrosis botrana* is now well controlled by means of dusting with arsenical compounds. In vegetable gardens *Gryllotalpa gryllotalpa* is successfully controlled by the prescriptions worked out by Martelli in Italy. *Heterodera radicola* is present everywhere, but no serious damage has been reported in recent years.

### Southern Rhodesia: Locust Invasion, 1932-1935 (1).

#### Monthly Report No. 31. June, 1935.

The locust position throughout June has remained quiet, but swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) have been recorded from the following districts, namely, Bubi, Chibi, Umtali, Gutu, Mrewa, Lomagundi, and Chilimanzi. The majority of these swarms have been described as 'large'.

A noteworthy occurrence was the receipt of fifth stage hoppers of this species collected in the Shangani Reserve, Bubi District on the 4th of the month, constituting by far the latest seasonal occurrence of hoppers of this species recorded in the Colony during the present cycle.

No definite direction of flight is apparent from the records. At this time of year, the swarms generally are comparatively inactive.

No disease has been recorded or reported amongst the locusts.

No damage has been reported.

### LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Algeria.** — By Decree of the Governor General of Algeria, dated 31 May, 1935, the Decree of 6 December, 1920, by which 14 communes of the department of Constantine were brought under the special scheme for protection against grape phylloxera, is annulled in regard to the commune of Duquesne. The ordinary system of free cultivation of vines of all origins will, however, apply to that commune. (*Journal Officiel de l'Algérie*, Alger, 21 juin 1935, 9<sup>e</sup> année, n<sup>o</sup> 25, p. 529).

**Germany.** — By a Law ('Reichsnaturschutzgesetz') of 26 June, 1935, the protection of natural sites and rare plants and animals is revised. By a Circular of 13 August, 1935, the chief of the forest administration of the Reich ('Reichsforstmeister') is charged with taking all measures relative to that Law, includ-

(1) Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

ing the protection of birds useful to agriculture and forestry. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1935, Bd. VII, Nr. 8, S. 144-151).

**Germany (Prussia).** — By Amendment of 2 July, 1935, to the prescriptions in force concerning poisons, it is prescribed, *inter alia*, that poisoned cereal seed intended for the control of harmful rodents should be dyed a dark red colour. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1935, Bd. VII, Nr. 8, S. 152-153).

**Germany (Saar Basin).** — By Notification of 29 July, 1935, it is established that, now that this territory is again under the sovereignty of Germany, all prescriptions of a phytosanitary order issued by the Government Commission are replaced by the corresponding prescriptions in force in Germany. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1935, Bd. VII, Nr. 8, S. 153-154).

**Australia (New South Wales) (1).** — By Proclamation of 9 July, 1935 *Puccinia graminis* is considered to be a disease for the purposes of the Plant Diseases Act, 1924.

\*\* Another Proclamation of the same date requires every owner and every occupier of land throughout the State to destroy every bush of *Berberis vulgaris* growing upon such land, for the prevention of the spread of *P. graminis*.

**Chile.** — By 'Decreto Supremo' No. 298 of 9 April, 1935, Article 5 of the 'Decreto Supremo' No. 105 of 11 February, 1925, regulating the Decree-Law No. 177 on the sanitary control of vegetables, does not apply to soya bean in as much as national production of this oil-bearing seed is not sufficient to meet the requirements of the oil industry.

If, in the parts of soya bean imported into the country, the Phytopathological Service ('Servicio de Sanidad Vegetal') determines the presence of a small number of *Bruchus obtectus*, *Laspeyresia* [*Cydia*] *glycinivorella* or other dangerous insects non-existent in Chile, these parts should, before entering the country, be subjected to fumigation so that the dangerous insects they contain should be completely destroyed.

In cases where the attacks by these insects are considerable, the parts of the seeds should be refused and should be returned within a space of time fixed by the Phytopathological Service. When this time limit has expired, the seeds should be destroyed by fire. (*Boletín del Ministerio de Agricultura*, Santiago del Chile, abril-mayo-junio 1935, año IV, núm. 4, pág. 191).

(1) From documents communicated by the official correspondent of the Institute, Dr. R. J. NOBLE Biologist, Department of Agriculture, Sydney, New South Wales.

\*\*\* By virtue of the 'Decreto Supremo' No. 458 of 27 April, 1935, the introduction of insects useful to agriculture (natural enemies of injurious insects) cannot take place except through the intermediary of the 'Servicio de Sanidad Vegetal' of the Ministry of Agriculture.

Direct importation by private persons of other insects having an economic value, such as bees, silk worms, etc., can only take place in a manner which corresponds entirely with the measures established by the Law on the sanitary control of the importation of plants or parts of plants.

The importation of birds, rodents and other small animals cannot take place without the authorisation of the 'Servicio de Policia Sanitaria Animal', in conformity with the Decree-Law No. 176, and will not be handed over to the interested parties until after the said Service has determined that they are in no way dangerous (*Ibid.*, pág. 189)

**Cyprus.** — By Order in Council No. 1643 of 21 June, 1935 the Order in Council No. 1421 of 23 April, 1931 [see this *Bulletin*, 1931, No. 9, p. 166] is amended by the substitution of a new form of inspection certificate and by the insertion of the clause that every person arriving in Cyprus by sea or air shall, immediately after landing, make a written declaration that no living plant material (flowers, fruit, vegetables, bulbs or plant material for propagation), is contained in its personal luggage or on its person other than the articles submitted for inspection and examination. (*Order in Council*. — No. 1643. *Made under* (1) *The Customs and Excise Regulation Laws, 1879 to (No. 3) 1930.* (2) *The Diseases of Plants Prevention Law, 1893.* (3) *The Customs, Excise and Revenue Law, 1899, Nicosia, Cyprus, 1935, 1 p.*)

**Egypt.** — By Royal Rescript No. 79 of 10 July, 1935, a local Committee is established for organising the Fourth International Locust Conference which will be held in Cairo in 1936. (*Journal Officiel du Gouvernement Egyptien*, [Le Caire], 18 juillet 1935, 62<sup>ème</sup> année, n° 64, p. 2).

\*\*\* By Decree of 15 July, 1935, the importation of date fruits into Egypt is forbidden without the authorisation of the Ministry of Agriculture (*Ibid.*, p. 3)

**United States of America.** — The rules and regulations (thirteenth revision) supplemental to Notice of Quarantine No. 48 on account of the Japanese beetle (*Popillia japonica*, Newm.), approved on 29 March and effective on 1 June, 1935, prohibit, unless a certificate or permit has been issued, the interstate shipment of green corn on the cob, beans in the pod, bananas in entire bunches, or in clusters of 25 or more, apples, peaches, blackberries, blueberries, huckleberries, or raspberries from any part of the regulated areas, and also prohibit (unless a certificate or permit has issued) the interstate movement of all fruits and vegetables by refrigerator car or motor truck from the District of Columbia, and parts of the States of Delaware, Maryland, New Jersey, Pennsylvania, and Virginia. Refrigerator cars used for loading fruits and vegetables,

other than onions and potatoes, in such area must, prior to loading, be cleaned by the common carrier and kept tightly closed and sealed during the interval between cleaning and loading. Onions and potatoes must be fumigated in the car when such action is deemed necessary by the inspector, and doors and hatches of the cars must be closed or screened. Other details and exceptions are given in regulation 5.

The regulations also prohibit the interstate shipment of plants, sand, soil, earth, peat, compost, and manure from any part of the regulated areas to or through any outside point throughout the year unless a Federal permit or certificate has been secured. Portions of plants and cut flowers are restricted interstate movement only between 15 June and 15 October, inclusive. Details and exceptions are given in regulations 6 and 7.

The regulated areas include the District of Columbia, the entire States of Connecticut, Delaware, Massachusetts, New Jersey, and Rhode Island, and parts of the States of Maine, Maryland, New Hampshire, New York, Pennsylvania, Vermont, Virginia, and West Virginia. The boundaries are shown in regulation 3.

These regulations also place certain restrictions to protect restricted articles from infestation while in transit, require thorough cleaning of vehicles and containers which have been used in transporting restricted products, and provide other safeguards and conditions as provided in regulations 8 to 13, inclusive. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Japanese Beetle Quarantine. Quarantine No. 48. Revision of Regulations*, [Washington], 1935, 13 pp., 1 map).

**France.** — By Ministerial Decree of 22 July, 1935, paragraph No. 2 of Article 1 of the Ministerial Decree of 25 February, 1928, determining, for certain fruit trees, the periods during which treatment with arsenical compounds is authorised, is modified except with regard to apple and pear trees.

For these latter, treatment with arsenical compounds is authorised during the period commencing after the harvest is completed and lasting until two months before the following harvest. (Ministère de l'Agriculture. Direction de l'Agriculture, *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1<sup>er</sup> août 1935, année 1935, n° 15, p. 331).

\*\*\* By Decree of 8 August, 1935, the provisions contained in the Law of 28 June, 1934 [see this *Bulletin*, 1934, No. 10, pp. 223-224] directed towards insuring the good marketable quality of fruits and vegetables and towards suppressing the sale of worm-eaten fruits, are made applicable to Algeria. (*Ibid.*, 1<sup>er</sup> septembre 1935, nos 16-17, p. 351).

**Italy.** — The Law No. 897 of 1 April, 1935 has transformed into a Law the Royal Decree-Law No. 1692 of 4 October, 1934, containing measures for the control of scale insects of citrus trees [see this *Bulletin*, 1934, No. 12, p. 278]. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 18 giugno 1935, anno 76°, n. 142, p. 3015).

\*\* By Ministerial Decree of 12 July, 1935, and by virtue of the provisions of the Law No. 987 of 18 June, 1931, containing measures for the protection of cultivated plants and agricultural products against adverse conditions also for the organisation of services relative thereto [see this *Bulletin*, 1931, No. 9, p. 166], an intercommunal Syndicate for the improvement and development of fruit-growing has been established with head-quarters at Fermo and comprising 46 communes of the province of Ascoli Piceno.

The contribution payable by each member of the Syndicate cannot exceed 1 lira per hectare of land sown and at the same time planted with fruit trees. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1º agosto 1935, anno VII, n. 22, pp. 3509-3510).

\*\* The Ministerial Decree of 15 July, 1935, containing regulations on hunting for the year 1935-1936, prohibits, *inter alia*, the hunting and capture of useful birds already enumerated in the Ministerial Decree of 20 July, 1934 [see this *Bulletin*, 1934, No. 9, p. 205]. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 23 luglio 1935, anno 76º, n. 170, pp. 3724-3725).

**Peru.** — By 'Resolución Suprema' No. 70, dated 12 June, 1935, peach mildew (*Sphaerotheca pannosa*) is declared a pest of national agriculture. The rural districts of the province of Arequipa are declared infested by this fungus, also the valleys of Vitor, Siguas and Majes in the department of Arequipa. Owners, tenants and all holders of rural or urban property in the districts of Arequipa and the valleys of Vitor, Siguas and Majes, who cultivate or possess peach trees, varieties of peach trees, almond trees or any other tree attacked by this disease, are obliged to carry out, at their own expense and at the proper time, the treatments indicated by the inspector of crop pests. The Agronomical Station of Arequipa is entrusted with the supervision of the application of regulations issued on this matter by the 'Dirección' of Agriculture and Animal Husbandry. (*La Vida Agrícola*, Lima (Perú), julio 1º de 1935, vol. XII, no. 140, pág. 555).

\*\* By 'Resolución' of 17 June, 1935, approval is given to the regulations concerning the above mentioned 'Resolución Suprema' No. 70. (*Ibid.*, págs. 555 y 556).

\*\* By 'Resolución' of 21 June, 1935, thrips of fruit trees is declared a pest of national agriculture.

At the same time the districts of the province of Arequipa and the valleys of Vitor and Siguas of the said department are declared infested by thrips.

It is compulsory for owners, tenants and holders who cultivate or possess fig trees, guava trees, pear trees and quince trees, to carry out, at their own expense

at the proper time, the measures indicated by the 'Inspección de Plagas Agrícolas'. ( *El Peruano*, Lima, 27 de junio de 1935, año 95, tomo I, trimestre II, no. 139, pág. 556).

\* \* Another 'Resolución' of the same date declares the 'cochinilla de los troncos de la parra' (*Phenacoccus* sp.) a pest of national agriculture.

The valley of Majes of the department of Arequipa is declared infested by the said scale insect.

It is compulsory for owners, tenants and holders who possess or cultivate vines, to carry out, at their own expense at the proper time, the sanitary measures indicated by the 'Inspección de Plagas' (*Ibid.*).

\* \* A third 'Resolución' of 21 June, 1935, declares the 'queresa redonda' (*Selanaspidus articulatus*) and the scale insect of lemon trees (*Aonidia* sp.) pests of national agriculture.

The valley of Majes of the department of Arequipa is declared infested by these parasites.

It is compulsory for owners, tenants and holders in the valleys of Majes and Camaná in the department of Arequipa, who possess or cultivate citrus or other fruit trees attacked by 'querasas', to carry out, at their own expense at the proper time, the sanitary measures indicated by the 'Inspección de Plagas Agrícolas'. (*Ibid.*).

**Uruguay.** — By Decree of 14 March, 1935, it is made compulsory to report, under pain of a fine, to the 'Defensa Agrícola', the appearance of ants and also to destroy ant-hills. (*Revista del Ministerio de Industrias*, Montevideo, Marzo de 1935, año 11, vol. III, pág. 48).

**Yugoslavia.** — By Ministerial Notification No. 35675/II of 10 June, 1935, the Ministerial Notification No. 13308/II of 11 March, 1935 [see this *Bulletin*, 1935, No. 6, p. 139] is modified in the following manner: France and Italy should not be included, for the year 1935, among the countries infested by San José scale (*Aspidiotus perniciosus*), as this scale insect does not exist in these countries. (*Službene Novine*, Beograd, 9 joulia 1935, godina XVII, broj 156-XXXVI, str. 550-551).

\* \* The Regulation No. 50700/II of August, 1935, establishes the measures relative to production, importation and trade in plant protectives. (*Ibid.*, 19 avgousta 1935, broj 191-XLIV, str. 747-749).

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The mycelial and pycnidial forms are described here as *Vralina glomerata* n. gen. and n. sp. The sclerotia are largely due to the immature perithecia of a *Microascus* indistinguishable from *M. intermedius* Emm. and Dodge. The synemas correspond to the conidial form (*Stysanus stemonites*) of *M. stysanophorus* (Matt.) Curzi (syn. *St. glomeratus* Sacc.). A description is also given of *V. radicolica* n. sp. isolated from the roots of *Chrysanthemum cinerariaefolium*].

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## NOTES

**Problems of Plant Pathology and Agricultural Entomology discussed at the XIth International Horticultural Congress.** — This Congress, which took place at the International Institute of Agriculture from 16 to 19 September, 1935, adopted, *inter alia*, the following resolutions concerning Plant Pathology and Agricultural Entomology:—

' The Vth Section (Phytopathology) again draws the attention of Governments to the great dangers presented by cryptogamic diseases of cultivated plants and also the often serious losses these diseases cause to agriculture.

' It recommends:—

(1) That scientific phytopathological research on plant pathology, properly so-called, and also on phytopathological genetics should be favoured as much as possible.

(2) That in all countries an organisation should be established for the protection of crops on a collective basis. In order that this collective action should have the most complete results, the Section is of the opinion that it should have a compulsory character.

(3) The Section also draws the attention of all those occupied in phytopathology to 'apoplexy' of apricot, plum and cherry trees so as to determine the exact causes of this dangerous disease'.

' The Vth Section (Entomology) is strongly of the opinion that the biological control of plant pests should be encouraged by all possible means as the control carried out by the use of poison substances alone cannot bring about the desired results, namely, the destruction of the insects

' For this reason, it recommends that acclimatisation and dissemination of hyperparasites should be carried out to the greatest possible extent in all countries '

' The Section requests, with a view to preventing the spreading of San José scale (*Aspidiotus perniciosus*) in the European countries which are free from this pest, that the International Institute of Agriculture should organise as soon as possible an International Conference in which will be studied the measures to be applied both in infested countries and in those which are not infested.

' In these measures it will be necessary to include the unification of the various regulations required for assisting the transit of fruits and also those relative to protection against the introduction of harmful insects '

The XIIth International Horticultural Congress will be held in Berlin in 1938

# INTERNATIONAL BULLETIN OF PLANT PROTECTION

## DISCOVERIES AND CURRENT EVENTS \*

### **Argentine Republic: The 'Dirección de Sanidad Vegetal' of the Ministry of Agriculture. Organisation and Functions (1).**

By 'Acuerdo de Ministros' of 21 January, 1935, the 'División de Defensa Agrícola' is separated from the 'Dirección de Defensa Agrícola y Sanidad Vegetal' and transformed into the new 'Dirección de Sanidad Vegetal'.

The 'Dirección de Sanidad Vegetal' thus established is entrusted with the application of the Law No. 4863 on the sanitary protection of plants within the territory of the Republic and for the agricultural products exported; and the Law No. 4084 on sanitary inspection for plants and seeds imported.

By Ministerial Resolution of 8 February, 1935, approval is given to the internal organisation of the 'Dirección de Sanidad Vegetal' which is integrated in the following form: 'División de Fitopatología' (Phytopathological Division); 'División de Zoología Agrícola' (Agricultural Zoology Division); 'División de Análisis y Clasificación Comercial de Semillas' (Division for the Analysis and Commercial Classification of Seeds); 'División de Fiscalización Sanitaria Vegetal' (Division of Sanitary Inspection of Plants); 'Oficinas Sanitarias de Importación y Exportación de Plantas' (Sanitary Offices of Plant Imports and Exports); 'Sección Reconocimiento y Control Sanitario' (Section of Verification and Sanitary Control); 'Fábrica Oficial de Insecticidas y Fungicidas' (Official Factory for Insecticides and Fungicides); 'Estación de Cuarentena de Plantas' (Plant Quarantine Station); 'Secretaría General y Delegación Administrativa' (General Secretariat and Administrative Delegation).

The services have been constituted as follows:—

**Investigation Services.** — In the charge of the Divisions of Phytopathology, Agricultural Zoology, and Analysis and Commercial Classification of Seeds.

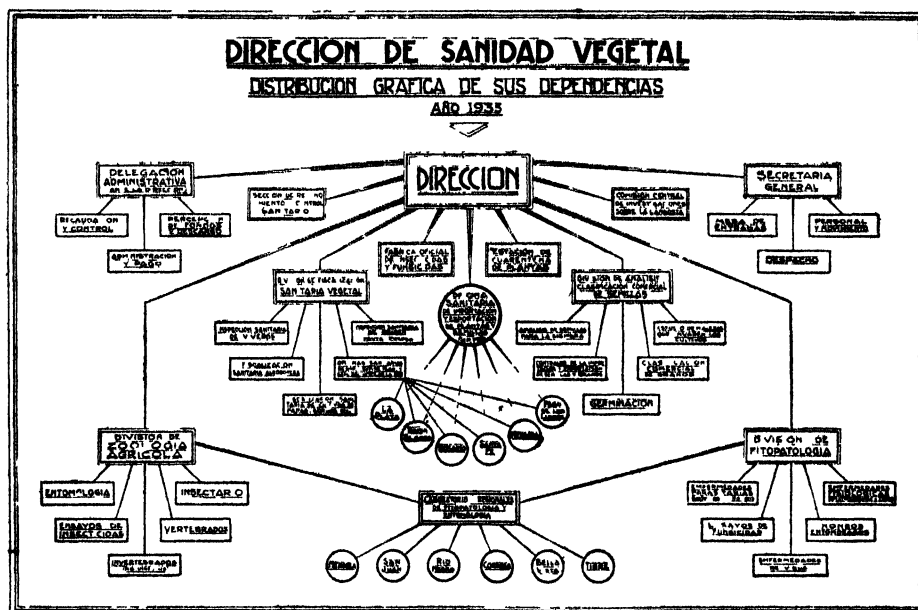
The Plant Pathology laboratories of Bella Vista (Corrientes), Córdoba, Mendoza, San Juan, Tigre, and Crnel. Juan F. Gómez (Río Negro) functions under the supervision of the Divisions of Phytopathology and Agricultural Zoology.

\* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Director of the 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires.

**Inspection Services.**— In the charge of the Division of Sanitary Inspection of Plants and the Sanitary Offices for Plant Imports and Exports.

The following are dependent on the Sanitary Inspection of Plants: 'Servicio de Fiscalización de Viveros' (Service of Sanitary Inspection of Nurseries), 'Servicio de Fiscalización Sanitaria Frutícola' (Service of Sanitary Inspection of Fruits); 'Servicio de Fiscalización Sanitaria Algodonera' (Service of Sanitary Inspection of Cotton), 'Servicio de Certificación de Semilla de Papa' (Service of Certification of Potato Seed); 'Oficinas Sanitarias de Importación y Exportación de Plantas' of Mendoza, Rosario, Santa Fé, and Bahía Blanca.



The Sanitary Office for Plant Imports and Exports of Buenos Aires functions as an organisation independent from the Division of Sanitary Inspection of Plants.

**Services of Verification and Sanitary Control.**— In the charge of the Section of Verification and Sanitary Control.

The following localities are the headquarters of the technical staff: Buenos Aires, Tigre, La Plata, San Nicolás, Paraná, Concordia, Rosario, Armstrong, Monte Caseros, Corrientes, Pindapoy, Córdoba, Mendoza, San Rafael, Colonia Alvear, San Juan, Tucumán, Jujuy, Catamarca, La Rioja, Cipolletti and Gral. Roca.

**Auxiliary Services.**— In the charge of the Official Factory for Insecticides and Fungicides of Tigre and the Plant Quarantine Station of José C. Paz.

The Official Factory for Insecticides and Fungicides of Tigre is entrusted with the preparation of these products and their distribution in the interior of the Republic by means of the ' Seccionales ' of the ' Defensa Agrícola '.

The Plant Quarantine Station, in addition to its special functions (cultivation of plants and seeds imported which should be kept under observation), possesses experimental fields for the work of the Divisions of Phytopathology and Agricultural Zoology.

The object of the investigation services is to study the diseases and parasites which attack plants and to determine the most suitable treatments for their eradication. Advice is also given to farmers on the agricultural value of seeds for sowing.

The inspection services supervise the entry of plant products at the ports and customs houses of the Republic in order to prevent the introduction of new pests of agriculture or diseases and inferior quality seeds; and permanently inspect the production of orchard, forest and ornamental plants so that these may be sold, free from pests and diseases, in all parts of the country.

The services for verification and sanitary control assemble all the data (geographical distribution, epoch of appearance, behaviour, damage, etc.) referring to agricultural pests and diseases and give advice on their eradication.

The ' Dirección de Sanidad Vegetal ' also carries out other accessory work: (a) establishes the conditions for the use of insecticides and fungicides which are found on sale and in the trade \*; (b) gives advice on all affairs concerning the application of the laws and regulations on the sanitary condition of plants; (c) assembles and registers the phyto-sanitary legislation in the country and abroad.

### Belgium : Outbreak of the Colorado Potato Beetle in the Country (1).

The Colorado potato beetle (*Leptinotarsa decemlineata*, Say) has suddenly appeared in Belgium during the course of this year.

Thirty outbreak centres of the insect were discovered simultaneously in different parts of the country. They were distributed as follows in the four provinces:—

Province of Namur . . . . .	11 outbreak centres
"    Luxembourg . . . . .	10                      "
"    Hainaut . . . . .	8                      "
"    Limbourg . . . . .	1                      "
10 outbreak centres were discovered during the month of July	
15   "          "          "          "          "          "          "	August
5   "          "          "          "          "          "	September.

\* The Ministry of Agriculture inspects these products through the intermediary of the Insecticide and Fungicide Commission (Decree of 9 November, 1934)

(1) Communication from Professor R. MAYNÉ, Director of the Entomological Station of the State, Gembloux, Belgium.

All the outbreak centres are limited to a few potato plants grouped within a radius of a few metres. They all consist of larvae, pupae or adults originating from eggs laid during June, 1935.

The invasion of Belgium by the Colorado potato beetle must be attributed to an extensive swarming from South to North which occurred during the month of June last. The insects also invaded the Semois valley; the South and Centre of Hainaut, the North and South of the province of Namur. The outbreak centre discovered in the province of Limbourg must be attributed to the introduction of an insect by the railway.

The first outbreak centre was discovered on 13 July, 1935, at Furnaux, province of Namur, in a garden. It consisted of 15 potato plants on which were found 107 larvae in the second and third stages. The following two outbreak centres were discovered in the province of Hainaut on 21 September. They were formed solely by adults.

\* \* \*

The invasion of Belgium by the Colorado potato beetle had been provided for.

In 1933, a Colorado Potato-Beetle Committee had been established at the Ministry of Agriculture under the direction of Mr. Van Orshoven, Director General. Thanks to this Committee, it was possible to take all urgent measures necessary for the eradication of the first outbreak centre and within 24 hours the danger of propagation was held in check.

The control of the Colorado potato beetle was entrusted to my direction. The means of control used were as follows —

- (1) Destruction of outbreak centres.
- (2) Prophylactic treatment of neighbouring fields.
- (3) Examination of potato crops.

(1) *Destruction of outbreak centres.* — After the larvae, adults and eggs had been collected by hand, the potato haulms were pulled up and treated with petrol on the spot. The soil is dug and sifted for three metres round the plants attacked and then sprayed with a mixture of kerosene and benzine at the rate of 5 litres per square metre

(2) *Prophylactic treatment.* — Within a circle of 2 kilometres radius round the outbreak centres, all potato crops are treated by spraying with 1 kilo of diplumbic arsenate to 100 litres of water. In the case when there are no market garden crops in the district and when adequate water supply is difficult to obtain, the prophylactic treatment is carried out by dusting with calcium arsenate.

(3) *Examination of potato crops.* — Several gangs of scouts under the direction of agents of the Colorado Potato-Beetle Committee inspect potato crops in regions under suspicion. In the majority of villages, teachers with their pupils have examined the fields.



In addition, all Communal Administrations have been put on the alert. Maps and pamphlets have been distributed in great numbers for purposes of propaganda. Lectures have been given everywhere by agents and agronomical experts of the Colorado Potato Beetle Committee.

**Eritrea: Locusts (1).**

On 20 August, 1935, a dense swarm of reddish coloured locusts were reported in the neighbourhood of Anagullei, Residence of Barentù, Western Plain, originating from the South and flying North-East.

The swarm appeared to consist of Desert Locusts (*Schistocerca gregaria*). No complaints have been received of damage to sown land.

\* \* \*

During the month of September, 1935, no locusts have been reported in the Colony.

**Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (2).**

During the month of June, 1935, locust movements were rare in the province of Nyassa \* though in the centre of the province of Zambezia \* locust movements were much greater than in the past year. In the province of Suí do Save \* the swarms were much larger than those observed in the two above mentioned provinces, although smaller than the swarms that invaded this province in 1934

On the whole the situation has greatly improved compared to that in the past epoch, especially in the North and to a less degree in the South.

On the frontier and also in Zululand swarms continually crossed and re-crossed the border, following the direction of the winds.

The swarms that were observed in Chibuto came from Guijá and probably proceeded from the frontier regions of the Transvaal.

Other swarms have been observed originating from the regions of Panda and Vilanculos.

(1) Communication from the official correspondent of the Institute, Dr ROJANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted to the Institute by the Government of the Colony.

(2) Communication from Mr JULIO GARDÍ VILARDO CARDOSO, Chief of the Entomological Section at Lourenço Marques, transmitted to the Institute by the Repartição Técnica de Agricultura of the Colony.

\* In this communication the nomenclature of the new administrative division has been adopted. In the future the former districts of Cabo Delegado, Nyassa and Mozambique will constitute the province of Nyassa. The districts of Tete and Quelimane will form the province of Zambezia. The former districts of Inhambane and Lourenço Marques will constitute the province of Suí do Save.

The swarms are continuously attacked by parasites, chiefly in the province of Zambezia.

In the province of Sul do Save dead locusts have been found attacked by a *Coccobacillus*.

Although the situation in general has improved it cannot be said that we shall be completely free from this plague next year. Various swarms will appear, chiefly of unknown origin, which in their search for breeding grounds will do much damage to property.

### **Southern Rhodesia: Locust Invasion, 1932-1935 (1).**

Monthly Report No. 32. July, 1935.

The number of swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) in the Colony appears to have been augmented during June by invasion from Portuguese East Africa. All reports received have referred to the eastern half of the Colony.

The following districts are included, namely:— Darwin, Melsetter, Lomagundi, Makoni, Mazoe, Umtali, Victoria, Ndanga, Gutu, Chilimanzi and Mtoko. The swarms have varied in size from 'small' to 'large'. In one case, a swarm is reported to have taken three and a half hour's to pass overhead. No particular trend of movement is indicated.

Some damage to winter wheat is reported from the eastern midland districts.

No reports of disease have been received and all specimens submitted to the headquarter office have been healthy.

### **Rumania: Non-Existence of Wart Disease of Potatoes in the Country (2).**

Up to the present Rumania is free from potato wart disease (*Synchytrium endobioticum*), so that tubers grown in the country may be imported elsewhere without fear of contamination. Moreover, consignments intended for export will be inspected by the inspectors of the Agronomical Research Institute of Rumania and will be accompanied by health certificates established in conformity with the model annexed to the International Convention for Plant Protection, signed in Rome on 16 April, 1929.

(1) Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

(2) Communication from the official correspondent of the Institute, Professor Dr. TR. SĂVULESCU, Chief of the Phytopathological Section of the Agronomical Research Institute of Rumania, Bucarest.

## LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Argentine Republic.** — The Decree No. 59.840 of 30 April, 1935, declares as pests of agriculture the following birds belonging to the family Psittacidae, commonly known by the names of 'loros': 'loro hablador' (*Amazona aestiva xanthopteryx*), 'loro choclero' (*Pionus maximiliani lacerus*), 'calacate' or 'loro de los palos' (*Thectocercus acuticaudatus*), 'loro barranquero' (*Cyanolyseus patagonus* and *C. patagonus andinus*), and 'cotorra catita' (*Myopsitta monacha*).

The destruction of the 'loro hablador' and 'loro choclero' will be carried out in the provinces of La Rioja, Catamarca and Tucumán and that of the 'calacate' or 'loro de los palos' and 'cotorra catita' in the same provinces and also in the provinces in the centre of the country.

The destruction of the 'loro barranquero', in both its forms, will only be carried out in parts of the country where it is ascertained that it has caused damage.

The 'Dirección de Sanidad Vegetal' will give the necessary instructions for the destruction of these species and will take whatever measures it considers advisable in order to put into effect the provisions contained in this Decree. (*Boletín Oficial de la República Argentina*, Buenos Aires, 13 de septiembre de 1935, año XLIII, núm. 12.366, págs. 483 y 484).

**Belgium.** — By a Circular of 19 April, 1935, the importation of tomatoes and aubergines has been regulated from the phytosanitary point of view.

Detailed prescriptions are given concerning the consignments coming from France in view of the presence of Colorado beetle (*Doryphora* [*Leptinotarsa*] *decemlineata*) in that country.

With regard to consignments coming from countries other than France, a certificate is required issued by the Plant Protection Service of the country of origin certifying that they come from a locality at least 20 kilometres distant from any centre of infestation by Colorado beetle. Importation should take place through certain customs posts a list of which is given. Consignments which are not accompanied by a certificate corresponding with the established rules will be returned, except in the case where they have been recognised as free from all parasites following inspection carried out by an official of the Belgian Plant Protection Service.

Special and less strict prescriptions are applied to consignments coming from the Netherlands.

Consignments passing through the country by railway are not subject to the above formalities. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 2. Augustheft, S. 2639-2640).

\*\*\* By another Circular of the same date the importation of potatoes is regulated.

The importation of tubers and plants of potatoes produced in France or coming from France is forbidden. An exception is made for the regions bordering on the Franco-Belgian frontier.

The importation of potatoes coming from countries other than France is permitted on condition that the consignments are accompanied by a certificate issued by the Plant Protection Service of the country of origin indicating the exact place of origin and certifying that this place and also the place of expedition are at least 20 kilometres distant from any centre of infestation by Colorado beetle and wart disease of potato (*Synchytrium endobioticum*). With regard to Colorado beetle this prescription is strictly enforced; in respect of wart disease exceptions are admitted under certain conditions.

The transit of potatoes by railway is permitted without formalities of a phytosanitary order. (*Ibid.*, S. 2640-2642).

\*\*\* By Ministerial Decree of 26 May, 1935, trade in asparagus, cauliflowers, tomatoes, strawberries and witloof (chicory) has been regulated with regard to the quality of the products. In respect of the sanitary condition, it is required that the products should correspond to the following conditions:—

Asparagus: free from parasites;

Cauliflowers: free from rot;

Tomatoes: free from bacterial diseases and blight;

Strawberries: free from rot and damage caused by slugs, insects and mites;

Witloof (chicory): free from worms and rot. (*Ibid.*, S. 2644-2645).

**Danzig.** — A Decree of 15 July, 1935, regulates the transit of potatoes, plants, seeds and fruits.

It is also established that consignments of seeds not exceeding 100 g. in weight, also seeds intended for scientific establishments and for agricultural tests, are exempted from the prescription relative to the colouring matter to be added to these seeds, also the certificate of cleanliness. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang September 1935, 15. Jahrg., Nr. 9, S. 87).

**Greece** (1). — By Decree of 28 March, 1935, modifying the Decree of 10 January, 1934 [see this *Bulletin*, 1934, No. 4, p. 82], the territory of the commune of Rapsani is declared infested with grape phylloxera (*Phylloxera vastatrix*) and the province of Agyia is declared free from grape phylloxera.

(1) According to a communication from the official correspondent of the Institute, Mr. A. AYOUSTANTIS, Chief of the Phytopathological Section, Ministry of Agriculture, Athens, Greece.

\*\*\* By Decree of 19 September, 1935, the department of Trikkala, up to the present suspected of being infested with grape phylloxera, is now declared an infested region.

**Leeward Islands.** — By Proclamation of 8 March, 1935, two lists have been established, one indicating the plant products the introduction of which is strictly prohibited and the other the products which are only admitted under certain conditions. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 2. Augustheft, S. 2697-2698).

**Italy.** — By Ministerial Decree of 31 July, 1935, and by virtue of the Law No. 987 of 18 June, 1931, containing measures for the protection of cultivated plants and agricultural products [see this *Bulletin*, 1931, No 9, p 166] a viticultural Syndicate has been established in the province of Littoria. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 10 settembre 1935, anno VII, n. 25, pp. 3975-3976)

\*\*\* By Ministerial Decree of 10 August, 1935, and by virtue of the Royal Decree-Law No. 1734 of 12 August, 1927, containing measures for the development of olive-growing, also the Law No. 987 of 18 June, 1931, a compulsory Syndicate has been established for the improvement and development of olive-growing in the province of Littoria.

The annual contribution payable by each member of the Syndicate cannot exceed 10 centesimi per tree in bearing (*Ibid*, pp 4000-4001)

\*\*\* By Ministerial Decree of 13 August, 1935 a compulsory Syndicate has been established for the improvement and development of olive-growing in the province of Benevento. (*Ibid.*, pp 4003-4004)

\*\*\* By Ministerial Decree of 26 August, 1935, the commune of Monsampolo del Tronto, in the province of Ascoli Piceno, has been declared infested by grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 5 settembre 1935, anno 76<sup>o</sup>, n. 207, p. 4408).

\*\*\* By Ministerial Decree of 31 August, 1935, and with a view to protecting agricultural crops in the region of Muratella-Maccarese, Rome, the hunting and capture of sparrows is authorised up to 31 December, 1935. (*Ibid*, 11 settembre 1935, n. 212, p. 4460).

\*\*\* By Ministerial Decree of 31 August, 1935, the communes of Avezzano, Cerchio and Pescina, in the province of Aquila, have been declared infested by grape phylloxera. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, 21 settembre 1935, n. 27, p. 4335).

\*\*. By Ministerial Decree of 4 September, 1935, the communes of Castelfranci, Mirabello Eclano, and Paternopoli, in the province of Avellino, have been declared infested by grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, 16 settembre 1935, n. 216, p. 4516).

\*\*. By Ministerial Decree of 9 September, 1935, the communes of Massa d'Albe, Collarmele, Luco dei Marsi, Trasacco, and Collelongo, in the province of Aquila, are declared infested with grape phylloxera. (*Ibid.*, 17 settembre 1935, n. 217, p. 4521).

\*\*. By Ministerial Decree of 24 September, 1935, the commune of Sant'Angelo Romano, in the province of Rome, has been declared infested with grape phylloxera. (*Ibid.*, 3 ottobre 1935, n. 231, p. 4820).

\*\*. By Ministerial Decree of 30 September, 1935, the communes of Lecce de' Marsi and Ortona de' Marsi, in the province of Aquila, are declared infested with grape phylloxera. (*Ibid.*, 16 ottobre 1935, n. 242, p. 5021).

\*\*. By Ministerial Decree of 30 September, 1935, the Royal Observatory for plant diseases of Reggio Calabria has been abolished. By the same Decree the provinces of Reggio Calabria, Consenza and Catanzaro have been included in the circumscription of the Royal Observatory of Portici. (*Ibid.*, 23 ottobre 1935, n. 248, p. 5119).

**Morocco (French Zone).** -- By Vizier's Decree of 12 July, 1935 (10 rebia II 1354), Article 1, paragraph 2 of the Vizier's Decree of 31 August, 1932 (28 rebia II 1351), regulating the importation into Morocco of plants or parts of plants liable to introduce European corn borer (*Pyrausta nubilalis*) [see this *Bulletin*, 1932, No. 11, p. 187], is modified as follows:—

'Article 1. — The importation into and transit through the French Zone of the Sherifian Empire of the following are forbidden:—

'(1) . . . . .

'(2) Any part or residue of plants of hemp (*Cannabis sativa* L. = *C. indica* Lam.) with the exception of seeds and fibre, also inflorescences free from all portions of the stalk'. (Empire Chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 26 juillet 1935, XXIV<sup>e</sup> année, n° 1187, p. 840-841).

\*\*. By Decree of 17 September, 1935, owners and tenants of maize fields situated on the borders of the Oued Sous, on the territory of certain sections of the bureau for native affairs of the suburbs of Agadir, are authorised to destroy wild boars on their land at all times and by all means, except by fire. (*Ibid.*, 27 septembre 1935, n° 1196, p. 1127).

**Peru.** — By Ministerial Resolution No. 388 of 27 June, 1935, approval is given to the regulation contained in the Supreme Resolution No. 73 by which thrips of fruit trees is declared a pest of national agriculture [see this *Bulletin*, 1935, No. 10, pp. 230-231]. (*La Vida Agrícola*, Lima (Perú), agosto 1º de 1935, vol. XII, no. 141, págs. 657 y 658).

\* \* By Ministerial Resolution No. 390 of 27 June, 1935, approval is given to the regulation contained in the Supreme Resolution No. 74 by which the 'cochinilla de los troncos de la parra' (*Phenacoccus* sp.) is declared a pest of national agriculture [see this *Bulletin*, 1935, No. 10, p. 231]. (*Ibid.*, págs. 656 y 657).

\* \* By Ministerial Resolution No. 389 of 27 June, 1935, approval is given to the regulation contained in the Supreme Resolution No. 75 by which 'que-reza redonda' (*Selenaspidus articulatus*) and the scale insect of lemon trees (*Aonidia* sp.) are declared pests of national agriculture [see this *Bulletin*, 1935, No. 10, p. 231]. (*Ibid.*, págs. 658 y 659).

**Dominican Republic.** — By Law No. 906 of 23 May, 1935, Article 2 of the Law No. 938 of 23 May, 1928, which prohibits the introduction into the country of plants, parts of plants and seeds, is modified thus:—

' Art. 2. — Such plant products may be introduced exclusively by the ports of Santo Domingo, San Pedro de Macorís, Barahona, and Puerto Plata '.

' Paragraph. — The Department of Agriculture will install in the said ports laboratories for investigation and chambers for disinfection in charge of certificated entomologists, and all the plant material indicated in Art. 1 [plants, parts of plants and seeds of every species intended for cultivation or sowing] will be detained in the customs until the laboratory determines their sanitary condition and the Secretary of State for Agriculture issues a permit to introduce them into the country, until this has taken place it will not be permitted to remove them from the customs '. (*Revista de Agricultura y Comercio*, Órgano oficial de la Secretaría de Estado de Agricultura y Trabajo, Santo Domingo, República Dominicana, julio de 1935, vol. XXVI, núm. 70, págs. 1929 y 1930).

**U. S. S. R.** — By Note of 12 September, 1935, the Chargé d'affaires of the U. S. S. R. at Rome has notified the Royal Ministry of Foreign Affairs of Italy that the Government of the U. S. S. R. adheres to the International Convention for Plant Protection signed in Rome on 16 April, 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55].

By the same Note it is communicated, according to the terms of Article 2 of the said Convention, that the following establishments are functioning in the U. S. S. R.: State Institute for Plant Protection at the Lenin Academy and the State Service for Plant Quarantine. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 27 settembre 1935, anno 76º, n. 226, p. 4744).

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[This is the tenth publication by this Author for the work of propaganda, the first edition was printed by the 'Consorzio obbligatorio provinciale' for the control of *Melolontha* spp. and *Thaumetopoea pityocampa* in the province of Varese. In addition to the control of these insects this volume indicates the means of controlling the following pests — *Cydia molesta*, *C. pomonella*, *Carpocapsa splendana*, *C. funebrana*, *Simulium nemorana*, *Hoplocampa brevis*, *Pteronix ribesii*, *Hyloloma rosae*, *Rhagoletis cerasi*, *Contarinia pyrivora*, *Euproctis chrysorrhoea*, *Pieris brassicae*, *Aporia crataegi*, *Lymantria dispar*, *Cossus cossus*, *Zeuzera pyrina*, *Sesia* sp., *Stephanitis pyri*, *Balaninus nucum*, *Anthonomus pomorum*, *Byctiscus betulae*, *Othorrhynchus singularis*, *Aelia rostrata*, *Icerya purchasi*, *Chionaspis evonymi*, *Eriosoma lanigerum*, *Gryllotalpa gryllotalpa*, etc. A detailed survey follows of the useful work carried out by the 'Consorzio' of Varese in the period 1919-1935].
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[Contains —  
A) Organisation phytopathologique en Roumanie.  
B) Lois, règlements, ordonnances, arrêtés  
C) Déparasitation des produits agricoles  
D) Conclusions.  
E) Annexes: 1<sup>o</sup> Tableau des produits fongicides et insecticides analysés et expérimentés à la Section de Phytopathologie de l'Institut de Recherches agronomiques de Roumanie]

2° Pulvérisateurs expérimentés par la Station des Machines agricoles de l'Institut de Recherches agronomiques de Roumanie

3° Modèle de certificat phytopathologique délivré par l'Institut de Recherches agronomiques de Roumanie

4° Modèle de certificat phytopathologique délivré par le Service officiel de Protection des Plantes du Ministère de l'Agriculture et des Domaines]

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[Enumeration of 58 Coleoptera, 18 Lepidoptera, 12 Hymenoptera, 3 Diptera, 15 Hemiptera, 1 Acarina, 4 Vertebrata]

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## NOTES

**A Resolution of the Fourth International Technical and Chemical Congress of Agricultural Industries.** — This Congress [see this *Bulletin*, 1935, No. 6, p. 148] adopted, *inter alia*, the following resolution: 'That an international organisation should be established for the study of the standardisation of fungicides and insecticides utilised for the protection of industrial plants'.

**Resolutions relative to Applied Entomology and Plant Pathology, adopted by the Fourth International Vine and Wine Congress.** — In respect of the control of pests and diseases of the vine, this Congress [see this *Bulletin*, 1935, No. 7, p. 172] has adopted, *inter alia*, the following resolutions:—

(1) That in the various vine-growing States the control of vine pest should be organised without delay, and that the necessary treatments should be made compulsory by the application of particularly strict regulations in common.

(2) That the sale of insecticides and fungicides should be regulated and their efficacy strictly controlled.

(3) That, on account of the useful results obtained in vineyards by the application of treatments discovered in laboratories for the control of vine parasites, the means of working available to viticultural research stations should be greatly increased.

(4) That it would be advisable to organise, in all countries, alarm services against the parasites, based on an approved system, and which may be discussed and selected following the work of a Commission established for this purpose. The regional

stations or observatories for agricultural meteorology should be developed and their reports should be made public by radio whenever possible.

(5) That in addition to the copper mixtures at present recommended as an excellent means of control of downy mildew of the vine [*Plasmopara viticola*], all attempts to improve on them should be encouraged. The other chemical methods, based on combinations of copper or copper fixation, should be made the object of further experiments before being recommended to vine-growers. For this reason, it would be advisable to recommend the official centres of viticultural research to include these experiments in their scheme of work.

(6) That researches should be carried out methodically in the various vine-growing countries, according to a previously established programme, with a view to determining particularly the reasons for vines dying when grafted on American stocks, also the reasons for their sensitiveness to different diseases

**A Correction.** — Our official correspondent Mr L. D. Galloway, M. A., Imperial Mycologist, Imperial Institute of Agricultural Research, Pusa, Bihar, India has informed us that owing to an error in the original text the following correction should be made on page 176 of the *Bulletin*

The correct reading is —

<i>Saccharum officinarum</i>	<i>Helminthosporium</i> sp causing footrot of seedlings. Stinking rot caused by <i>Bacterium pyocyaneum</i> var <i>saccharum</i>
<i>Elettaria cardamomum</i>	<i>Phyllosticta</i> sp, etc., etc

# INTERNATIONAL BULLETIN OF PLANT PROTECTION

## DISCOVERIES AND CURRENT EVENTS \*

### **French West Africa: Insect Pests of the Oil Palm in Dahomey (1).**

*Oryctes boas* F.  
*O. monoceros* Oliv.  
*O. owariensis* P. de B.  
*Archon centaurus* Burm.  
*Platygenia barbata* MacLean.  
*Clastocnemis quadrimaculata* Afz.  
*Rhynchophorus phoenicis* F.  
*Sphenophorus quadrimaculatus* F.  
*Aspidiotus destructor* Sign.  
*Hemichionaspis marchali* Ckll.  
*Adoretus umbrosus* F. (— *A. hirtellus* Castn.).

### **Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (2).**

During the months of May and June, 1935, an active campaign has been carried out against locusts in all the invaded districts of the Colony. The results of the control in these two months will be seen in the following table:—

Provinces	Eggs destroyed (kilos)	Hoppers destroyed		Adults destroyed (kilos)
		Band.	Kilos	
Luanda . . . . .	—	8 013	14 950	13 429
Malange . . . . .	—	140	39 500	80
Benguela . . . . .	—	—	310 190	6 500
Huila . . . . .	70	—	3 000	—
Bié . . . . .	—	—	38 800	—
Total . . .	70	8 153	142 152	20 009

\* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr. A. MALLAMAIRE, Colonial 'Ingénieur Agronome', Director of the Laboratory of Phytopathology and Entomology of the Ivory Coast, Bingerville.

(2) Communication from Mr. JORGE DE BARROS RODRIGUES QUEIROZ, Director of the Laboratory of Plant Pathology and Agricultural Entomology, attached to the Service for Locust Destruction, Luanda, transmitted to the Institute by the Government General of the Colony.

In spite of the active and effective control carried out by the Service for Locust Destruction in the whole Colony, a certain number of hopper bands have been reported during the month of June in various districts, a great part of which were destroyed, though it appeared possible that the control would have to be prolonged during the month of July. The appearance of swarms has also been noted, generally not very active, some of which were formed within the Colony and others came from outside, though in comparison with the enormous invasion of hoppers registered in the previous months, the quantity of adults at present existing is relatively of less importance.

All this shows that the situation will tend to improve considerably in the forthcoming year.

*Empusa grylli* has been constantly observed in various districts and has proved to be a valuable aid in the campaign of destruction.

The great majority of the harvests may be considered as saved.

### **Australia: Notes on Plant Diseases Recorded in New South Wales for the Year Ending 30th June, 1935 (1)**

#### **CERFALS AND FIELD CROPS.**

**Wheat:** Stem rust (*Puccinia graminis tritici*) developed extensively, but damage was checked by development of cool conditions in the Spring. Physiological form 34 is still predominant but form 11 was noted for the first time during the season. Although the occurrence of form 11 was not traceable to natural infection on the barberry, regulatory action against this plant has now been taken. Weather conditions also did not favour development of Foot-rot (*Helminthosporium* spp.), Root-rot (*Fusarium culmorum*), or Take-all (*Ophiobolus graminis*). Black Chaff (*Bacterium translucens* var. *undulosum*) was recorded for the first time, although it is evident that the disease has been present in crops for some years. Other conditions of minor importance included Basal Glume-rot (*Bacterium atrofaciens*), Black Point of grain (*Helminthosporium* spp., *Bacterium* spp. and *Alternaria* sp.). The almost universal use of copper carbonate dust has almost eliminated bunt (*Tilletia levis* and *T. tritici*) and the extensive use of resistant varieties has greatly reduced the incidence of Flag Smut (*Urocystis tritici*). Leaf Spot (*Septoria tritici*) and Glume Blotch (*Septoria nodorum*) were more prevalent than usual. Frost injury reduced yields considerably in a number of instances.

**Oats:** The only record of interest was that of Bacterial Stripe (*Bacterium striafaciens*) which was recorded for the first time.

**Rye:** Bacterial Blight (*Bacterium translucens secalis*) was also recorded for the first time.

(1) Communication from the official correspondent of the Institute, Dr R. J. NOBLE, Biologist, Department of Agriculture, Sydney, New South Wales, Australia.

**Maize:** As in previous years, Root and Stalk-rot (*Gibberella saubinetii*) was prevalent in most maize areas. Faulty germination and seedling blight followed infections by *G. moniliformis* and *G. fujikuroi* var. *subglutinans*, the former fungus was the principal cause of cob and grain rot but *Diplodia zeae* was more prevalent in cooler tableland areas. Barren stalk and nubbin cob conditions were conspicuous in cooler districts. A recurrence of American Maize Smut (*Ustilago zeae*) was noted in a crop planted in a quarantine area, and drastic measures were taken to ensure eradication.

**Sorghum and Millet:** Anthracnose (*Colletotrichum graminicolum*) seriously affected coastal crops. Bacterial Streak (*Bacterium holcicola* ?) caused serious injury in one district.

**Sugar Cane:** Relatively small losses were occasioned by diseases which included Mosaic and Fiji virus diseases as well as Gunmosis (*Bact. vascularum*). The latter disease has been practically eliminated from one large cane-growing area. Spindle top (undet.) caused some loss in one locality and was associated with cold, wet Summer conditions.

**Lucerne:** As in previous years, stem nematode (*Anguillulina dipsaci*) and Witches' Broom (virus) were of most importance. Downy mildew (*Peronospora trifoliorum*) occurred in many crops but generally the infection was not severe. Black-stem (*Phoma medicaginis*) caused damage in some areas. Anthracnose (*Colletotrichum trifolii*) and Bacterial blight (*Bact. medicaginis*) were also recorded.

**Tobacco:** Downy mildew (*Peronospora tabacina*) \* again seriously affected crops in seedling stages.

#### FRUIT CROPS.

**Apples and Pears:** Black Spot (*Venturia inaequalis* and *V. pirina*) was again of greatest importance. It was also reported from inland irrigation areas. Fleck (*Entomosporium maculatum*) caused severe infection in some pear crops. Powdery mildew (*Podosphaera* sp.) was recorded for the first time as a disease of pears. Other diseases were as recorded in previous years.

**Quinces:** Fleck (*Entomosporium maculatum*) was recorded for the first time on this crop and caused serious loss in coastal areas.

**Citrus:** Cool Summer conditions checked manifestation of Black Spot (*Phoma citricarpa*) to some extent. Black Pit (*Bacterium syringae*) was reported only from southern areas. Brown rot (*Phytophthora hibernalis*) caused more than usual loss. Heavy rains in late Winter and early Spring appeared to favour extensive development of green and blue mould (*Penicillium digitatum* and *P. italicum*) in local and storage shipments. Sore eye (physiological) caused

\* New methods developed for control are particularly promising. See the paper of H. R. Angell, A. V. Hill, and J. M. Allan recorded in this *Bulletin*, 1935, No. 12, p. 281.

serious loss in export shipments. Root-rots (*Armillaria mellea* and *Ganoderma* sp.) were of considerable importance in some areas. Leaf yellowing (magnesium deficiency) was again important during Autumn and Winter months.

**Stone Fruits:** Brown Rot (*Sclerotinia fructicola*) commenced development in blossom stages and subsequently again caused serious loss. Rust (*Puccinia pruni-spinosae*) caused premature defoliation and slight fruit infections. Bacterial Spot (*Bact. pruni*) although recorded again on plums, did not cause serious damage. Bladder plum (*Taphrina pruni*) was reported in one locality. Freckle (*Cladosporium carpophilum*) and Shot hole (*Clasterosporium carpophilum*) developed rather extensively. Wood rots, particularly *Schizophyllum commune* and *Polystictus cinnabarinus* were of common occurrence in metropolitan and coastal districts. *Fomes pomaceus* was recorded on peach for the first time. Internal browning (physiological) occurred to a slight extent in one variety of peaches grown under inland irrigation conditions.

**Bananas:** Anthracnose (*Gloeosporium musarum*) caused considerable amount of wastage in Spring and Autumn fruits. Wet Spring conditions favoured development of Cigar end (*Stachyldium theobromae*). Squinter (*Nigrospora sphaerica*) and Leaf spot (*Cercospora musae*) were not as important as in previous years. Fungous stem-end rots were prevalent in most consignments and were associated with the method of marketing fruit in singles. A streak condition, possibly of virus origin, was observed for the first time. Lightning caused serious injury in two plantations.

**Miscellaneous Fruits:** Black Spot (*Gloeosporium ampelophagum*), Downy mildew (*Plasmopara viticola*) and Powdery mildew of grapes (*Oidium* sp.) were severe in many vineyards. Passion fruit continues to be seriously affected by woodiness (virus) and Brown Spot (*Macosporium* sp.) Bacterial blight (*Bact. juglandis*) was of importance in several localities.

#### VEGETABLE CROPS

**Beans:** Bacterial blight (*Bact. medicaginis* var. *phaseolicola*) although again serious, was not so important as in the previous season, mainly as a result of improved quality of seed. *Cercospora* sp. caused a leaf spot, *Sclerotinia sclerotiorum* and *Sclerotium rolfsii* caused rots of minor importance. Mosaic (virus) was most severe in Spring crops.

**Cabbages and Cauliflowers:** Black Rot (*Bacterium campestre*) caused most serious losses. Other conditions of less importance included Alternaria spot (*A. brassicae*), Bacterial Spot (*Bact. maculicolum*), Ring Spot (*Mycosphaerella brassicicola*) and Wire Stem (*Rhizoctonia solani*).

**Potatoes:** The disease situation was much less serious than in previous years. Common scab was not prevalent, although some loss resulted from *Rhizoctonia* scab. Marked improvement has been effected in control of virus diseases; leaf roll was less conspicuous.



**Tomatoes:** Early blight (*Macrosporium solani*) caused loss in Spring and Autumn crops; the organism was also associated with a stem girdle condition. Fusarium wilt (*Fusarium lycopersici*) was of less importance owing to extensive use of resistant varieties. Leaf mould (*Cladosporium fulvum*) was again serious in glasshouse crops, although prevailing low temperatures prevented rapid development of the disease. The wilt stage of bacterial canker (*Aplanobacter michiganense*, was observed for the first time in field crops. Spotted wilt (virus) caused loss in Spring crops, although the season did not favour extensive development of the disease. Streak (virus) was again observed in glasshouse crops.

**Peas:** Wilt (*Fusarium orthoceras pisi*) was recorded for the first time.

#### MISCELLANEOUS PLANTS.

Records of local interest included the following:— Leaf Spot of Bamboo (*Phyllosticta* sp.), Tar Spot (*Phyllachora* sp.) of Port Jackson Fig (*Ficus rubiginosa*) causing extensive defoliation, further occurrences of smothering fungus (*Thelephora terrestris*) on *Pinus radiata* and of Tomato Spotted Wilt (virus) on Dahlia and Schizanthus. A bacterial spot of Tung Oil (*Aleurites fordii*) was recorded from one locality. A stalk crack (undet.) below blossoms was observed in commercial plantings of Chrysanthemums.

#### Eritrea: Locusts (1).

During the month of October, 1935, no locusts have been reported in the Colony.

#### India: New Diseases of Crops during the Year 1934-1935 in Burma (2).

<i>Theobroma cacao</i> L.	<i>Cephaleuros mycoidea</i> Karst.
<i>Cucurbita ovifera</i> L.	<i>Erysiphe cichoracearum</i> DC.
<i>Capicum annuum</i> L.	<i>Choanephora cucubitarum</i> Thaxt.
<i>Zingiber officinale</i> Rosc.	<i>Pythium</i> sp.
<i>Elaeis guineensis</i> Jacq.	<i>Diplodia</i> sp.
<i>Manihot utilisima</i> Pohl.	<i>Cercospora henningsii</i> Allesch.
<i>Triticum</i> sp.	<i>Puccinia glumarum</i> Erikss. and Henn.
<i>Citrus aurantium</i> L.	<i>Penicillium digitatum</i> Sacc.
<i>Allium</i> sp.	<i>Macrosporium parasiticum</i> Thüm.

None of these diseases occurred on an extensive scale.

(1) Communication from the official correspondent of the Institute, Dr. ROLANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

(2) Communication from the official correspondent of the Institute, Mr. U. THET SU, D. I. C., B. Ag., Mycologist, Burma, Mandalay.

\* Mon. 12 Ingl.

**Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (1).**

July, 1935.

A few swarms have appeared in the North of Metarica only, though also in the province of Zambezia a certain movement of locusts has been noted, flying without any fixed direction.

South of the river Save swarms continued to appear, either flying towards the North or carried back by the wind.

In the neighbourhood of the banks of the Limpopo and the borders of Zululand larger movements of locusts has been observed.

In the middle of the month two small swarms flew from Maputo towards Zululand and at the end of the month a large swarm coming from this region settled in the neighbourhood of Catuane. At the same time other small swarms were reported flying towards Zululand.

As to locust movements on the banks of the river Limpopo, according to reports of this month and previous months, it has been observed that various swarms following the river and, passing by Caniçado, continued towards Chibuto and arrived at Bilene and Vila João Belo. Some of these swarms flew North to Manjacaze, others to the mouth of the Limpopo.

In conclusion, the North of the Colony is almost free from locusts, while in the central region swarms have been reported moving about without any fixed direction. In the South of the Colony the greater part of the swarms moved around the rivers Maputo and Limpopo, now North, now South, following the direction of the prevailing winds.

The general situation has improved in comparison with the same epoch in 1934.

**Southern Rhodesia: Locust Invasion, 1932-1935 (2).**

Monthly Report No. 33. August, 1935.

Swarms of winged locusts of the red species (*Nomadacris septemfasciata*, Serv.) have been in evidence in various parts of the colony during August. The swarms have been described as from 'small' to 'enormous' and 'terrific'.

The districts visited by locusts include Victoria, Matobo, Gutu, Bikita, Mtoko, Darwin, Lomagundi, Inyanga, Hartley, Mrewa, Salisbury, Umtali, Melsetter and Sebungwe, indicating a more or less general distribution, excluding the extreme western and southern part of the colony.

(1) Communication from Mr. JULIO GARDÉ ALFARO CARDOSO, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the Repartição Técnica de Agricultura of the Colony.

(2) Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. R. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

The swarms have continued to haunt the more humid section of the eastern border, especially in the Chipinga sub-district (Metsseter district), and much damage to young grass, trees, etc., is reported.

Specimens examined have shown no indication of disease or parasites.

The prospect in respect to the next hopper outbreak apparently depends upon the intensity of the anticipated pre-breeding invasion from the north about November and meteorological conditions during the approaching wet season. There are clearly sufficient locusts in the colony at present to produce a considerable outbreak of hoppers somewhere, if conditions prove favourable to breeding.

## LEGISLATIVE AND ADMINISTRATIVE MEASURES

**Germany (Lübeck).** -- By Police Ordinance of 30 March, 1935, relative to the prevention of the introduction of potato pests, it is established that land on which potatoes and tomatoes have been grown should not again be cultivated with them during the following two years. At least a triennial crop rotation must be therefore established.

Owners of plots not exceeding 1000 m<sup>2</sup> are forbidden to cultivate more than one third of the area with potatoes and tomatoes. (*Gesetz- und Verordnungsblatt der freien und Hansestadt Lübeck*, Lübeck, 16. April 1935, Nr. 6. S. 50).

**Germany (Oldenburg).** -- A Decree of 15 August, 1935, amending that of 8 June, 1935 [see this *Bulletin*, 1935, No. 9, p. 205], fixes that the eradication of thistles [*Cirsium arvensis*] should take place before 15 May in fields cultivated with cereals. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. November 1935, Bd. VII, Nr. 9, S. 178).

**Germany (Prussia).** -- By Ordinance of 20 June, 1935, the control of asparagus rust [*Puccinia asparagi*] has been rendered compulsory in the district of Osterburg, province of Saxony. During the period from the beginning of May up to 23 June, all asparagus growers should examine their asparagus fields for signs of rust. The plants attacked should be cut down before 23 June. The parts cut shall be burnt or buried deeply. All asparagus plants growing in the wild state should also be destroyed. In asparagus fields in bearing, seed production should be prevented until the end of the season. Asparagus fields not yet in bearing should be treated with a mixture of lime and copper. This treatment should be repeated three times at intervals of 3 to 4 weeks. The date on which the treatment should be started will be published in the official journal. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. November 1935, Bd. VII, Nr. 9, S. 176-177).

**England.** -- By the Importation of Elm Trees and Conifers (Prohibition) (Amendment) Order of 1935, dated 18 June, 1935, plants of any of the genera mentioned in the Schedule to the Importation of Elm Trees and Conifers (Pro-

hibition) Order of 1933 [see this *Bulletin*, 1933, No. 12, pp. 273-274] may be landed in England and Wales, notwithstanding any of the provisions of the said Order of 1933, for instructional, scientific and similar purposes under and in accordance with the conditions of a licence issued by the Minister of Agriculture and Fisheries or by an Inspector. (*Statutory Rules and Orders*, 1935, No. 578. *Destructive Insect and Pest, England. The Importation of Elm Trees and Conifers (Prohibition) (Amendment) Order of 1935. Dated June 18, 1935.* London, 1935, I p.).

**Argentine Republic.** — The Decree No. 53045 of 10 December, 1934, has established at the 'Dirección de Defensa Agrícola y Sanidad Vegetal'\*, dependent on the Ministry of Agriculture, a body of honorary agronomical correspondents with the functions and responsibilities incumbent on the technical staff of the above service, who will be appointed solely to the localities where no official technical services of the above 'Dirección' exist, for the purpose of carrying out the necessary work. (*Revista Argentina de Agronomía*, Buenos Aires, abril de 1935, tomo 2, nº 5, págs. 43 y 44).

\*. Decree No. 56.827 of 26 February, 1935, suspends the provisions of the Decree No. 55.500 of 31 January, 1935, modifying the charges fixed for the inspection, issue of certificates and disinfection of vegetable products. (*Boletín Oficial de la República Argentina*, Buenos Aires, 11 de julio de 1935, año XLIII, núm. 12.313, pág. 406).

\*. Decree No. 56.824 of 27 February, 1935, establishes the form for collecting the charges for the disinfection of cotton seed. (*Ibid.*, págs. 405 y 406).

\*. Decree No. 56.910 of 6 March, 1935, fixes the sale prices of galvanised iron barriers for use against locusts [*Schistocerca paranensis*]. (*Ibid.*, pág. 406).

**Brazil.** — By 'portaria' of 11 June, 1935, it is permitted to kill sparrows in all parts of the country at all times and by all means. (*Diário Oficial*, [Rio de Janeiro], 19 de junho de 1935, anno LXXIV, n. 139, pag. 13218).

**Chile.** — By Decree No. 756 of 22 May, 1935, it is made compulsory from 15 May, 1935 to 15 May, 1936, to control fruit fly (*Anastrepha* sp.) in the valley of Codpa, department of Arica, in the manner set forth in the said Decree. (*Diario Oficial de la República de Chile*, Santiago, 3 de julio de 1935, año LXIII, núm. 17,207, págs. 2109 a 2112).

\* With regard to changes that have been made in the denomination and organisation of this Service, see this *Bulletin*, 1935, No. 11, p. 245.

\* \* The Decree No. 781 of 29 May, 1935, modifies paragraph (e) of article 5 of the Supreme Decree No. 105 of 11 February, 1935, regulating the Decree Law No. 177 of 31 December, 1924, on Plant Health policy, in the following manner:—

'(e) Peach trees originating from the United States of America which are carriers of the diseases known as Peach Yellows, Peach Rosette and Little Peach. Plants not attacked by these diseases may be introduced in conformity with the provisions contained in the present Decree'. (*Ibid.*, pág. 2112).

**Colombia (Republic of).** — The Decree No. 810 of 6 May, 1935, establishes a special temporary commission of plant protection, supervising the areas on the Atlantic coast and the river ports of Magdalena, in order to inspect the plant products for import and export, with a view to preventing the spread of pests and diseases which may be harmful to national agriculture and trade abroad.

The Inspector of 'Sanidad Vegetal', who will be chief of the said Commission, shall have ample powers to carry out disinfection of warehouses, boats, barges railway waggons, plantations and other places, as well as of vehicles infested by injurious diseases or pests and likely to be harmful to agricultural products for import or export, and shall also lay down the provisions to be made in each case for the proper warehousing of the products for export.

As from 1 June, it is prohibited to export plant products from zones recognised as being infested by diseases or pests, unless they are accompanied by a certificate attesting that they have been disinfected.

All consignments of products intended for export and coming from infested regions which are not accompanied by a declaration of disinfection will be retained until the persons interested have presented the said declaration.

It is prohibited to export by the Pacific route products grown in regions infested by diseases or pests, which are not accompanied by the above mentioned certificate.

It is prohibited to transport by the river Magdalena products which, originating from infested regions, are not accompanied by certificates attesting that they have been disinfected. (*Diario Oficial*, Bogotá, 7 de junio de 1935, año LXXI, núm. 22903, pág. 534).

**Scotland.** — The Importation of Elm Trees and Conifers (Prohibition) (Scotland) (Amendment) Order of 1935, dated 2 July, 1935, prescribes measures analogous to those already adopted for England [see this *Bulletin*, 1935, No. 12, pp. 275-276]. (*Statutory Rules and Orders*, 1935, No.  $\frac{640}{S. 28}$ . *Destructive Insect and Pest, Scotland. The Importation of Elm Trees and Conifers (Prohibition) (Scotland) (Amendment) Order of 1935. Dated July 2, 1935. London, 1935, 1 p.*).

**Finland.** — By Law No. 53 of 25 January, 1935, paragraph 9 of the Law of 5 June, 1925, on the protection of plants [see *Annuaire international de Législation agricole*, XV<sup>ème</sup> année (1925), pp. 742-743] has been modified. It is established that the expenditure on measures taken in virtue of the Law shall be borne by the State; however, the State Council is authorised to issue an order that an indemnity shall be paid to the State by importers for the phytosanitary control of imported products. Persons suffering losses as result of the application of the Law will be compensated. They should apply for compensation within a period of 30 days. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 2. Septemberheft, S. 2989).

\*\*. By Ministerial Resolution No. 219 of 6 June, 1935, based on the Resolution of the State Council of the same date, the total expenditure by the State on the inspection of potatoes introduced into the country has been fixed. The importer will pay 50 marks, Finnish, for a quantity of potatoes less than 1000 kgs and 20 marks for each 2000 kgs over and above that quantity (*Ibid*).

**Aegean Islands.** — By Decree No. 170 of the Governor of the Dependency, dated 14 August, 1935, the provisions contained in the Law No. 1272 of 23 June, 1927 [see *Annuaire international de Législation agricole*, 1928, XVII<sup>e</sup> année (1927) p. 35] concerning the institution of a national mark for horticultural products intended for export, are applicable to the Aegean Islands.

The certificates provided by the said Law will be issued by the Phytopathological Laboratory of Rhodes (*Il Messaggero di Rodi*, Rodi, 18 ottobre 1935, anno XX, n. 242, p. 3).

**Jamaica.** — The Protection from Plant Disease (Banana and Plantain Suckers) Order, 1935, dated 7 May, 1935, relating to the Panama disease of bananas [*Fusarium cubense*] and the black weevil borer of bananas [*Cosmopolites sordidus*], prohibits the removal of any banana suckers or plantain suckers except under the conditions stated in the said Order. (*The Journal of Jamaica Agricultural Society*, Kingston, June & July, 1935, Vol XXXIX, Nos. 6 & 7, p. 406).

**Palestine (1).** — By Order No. 129 of 1935, dated 5 September, 1935, which may be cited as the Plant Protection Order (No. 2) 1934, Amendment Order, 1935, all plants not included in schedules I, II and III to this Order may be imported into Palestine, provided that they are first inspected by a Plant Inspector at the place of entry into Palestine and found free from diseases and pests.

All plants included in schedules I and III which are required for experimental or scientific purposes may be imported into Palestine provided that the written

(1) From documents communicated to the Institute by the Director of Agriculture and Forests, Jerusalem, Palestine

permission of the Director of Agriculture and Forests to import such plants is obtained at least seven days before the date of importation.

No seed potatoes shall be imported into Palestine after 1 October, 1935, save under and in accordance with the special conditions indicated in this Order.

The importation of the following plants included in schedule I is prohibited, provided that any or all of them may be imported for experimental or scientific purposes and provided that the prohibition does not apply to preserved, pressed or dried fruits:—

Bananas (*Musa* spp)

All species of *Citrus*, other than citrus fruits from Egypt, Syria or Cyprus

Mango (*Mangifera* spp), other than mango fruit being the *bona fide* produce of Egypt

Avocado pear (*Persea* spp)

Papaw (*Carica papaya*)

Egg-plant (*Solanum melongena*)

Tomato (*Lycopersicum esculentum*), other than tomato fruit being the *bona fide* produce of Egypt

Custard apple (*Anona* spp)

Fig (*Ficus*, all species)

Pomegranate (*Punica granatum*), plants only

Guava (*Psidium guajava*), plants only

Mulberry (*Morus* spp), plants only

Palms, all species other than the fruit of the date palm

Cotton (*Gossypium* spp), other than ginned cotton

*Hibiscus* (all species)

The importation of the following plants included in schedule II is permitted, provided that each consignment is accompanied by a certificate that the plants are free. (a) from all diseases and pests, and (b) in particular, from the diseases or pests indicated opposite the name of each plant respectively in the list below. The certificate must be signed by an officer of the Phytopathological Service (or any equivalent authority) in the country of origin.

Vine plants (*Vitis vinifera*)

Phylloxera, virus disease known as 'court-noue' or 'arriccamento'

Mango fruit being the *bona fide* produce of Egypt

*Bacillus mangiferae*, *Chrysomphalus ficus*,  
*Chrys personatus* *Phenacoccus hirsutus*,  
all species of *Iripetidae*

Consignments must be accompanied by a certificate stating that the grove from which the fruit has been gathered has on inspection proved to be free from *Phen hirsutus* (Hibiscus mealy bug) and *Chrys personatus*. Only boxed fruit will be accepted, and then only through the ports of Jaffa and Haifa or Jerusalem Railway Station

Citrus fruits from Egypt, Syria or Cyprus

*Chrys ficus* (Black Scale), *Aonidiella aurantii* (Red Scale)

All other fruits, vegetables and plants from Egypt not included in schedule I.

Plums, quinces, apples and pears whether nursery stock or fruit from the United States of America, Canada, Australia, Hungary, Rumania, South Africa, Argentine, New Zealand, Austria, Brazil, India, Yugoslavia, Japan, Mesopotamia, Mexico, Spain, Portugal, Chile, China or Hawaii. Also apple, quince and pear nursery stocks from countries other than those above mentioned

Maize seed for sowing only.

Bean seed for sowing only.

Ware potatoes.

Cabbage seed and cauliflower seed

Fresh cherries.

Fresh peaches.

*Chrys. ficus*; *Phen. hirsutus*.

*Aspidiotus perniciosus* (San José Scale).

The following grades of fruit will be accepted without certificate:—

'Fancy No. 1', 'Extra Fancy', and 'Fancy' grades from U. S. A., South Africa, New Zealand and Australia.

*Sclerospora graminicola*.

*Colletotrichum lindemuthianum*

*Phthorimaea operculella*.

*Leptinotarsa decemlineata*

*Pseudomonas campestris*.

*Rhagoletis cerasi*

*Clasterosporium carpophilum*

The following plants included in schedule III which are required for experimental or scientific purposes shall, in addition to the said written permission of the Director of Agriculture and Forests, be accompanied by a certificate that the plants are free: (a) from all diseases and pests, (b) in particular, from the diseases or pests indicated opposite the name of each plant respectively in the list below. The certificate must be signed by an officer of the Phytopathological Service (or any equivalent authority) in the country of origin.

Citrus nursery stock and budwood

*Pseudomonas citri*, *Sphaceloma fawcetti*, all *Coccidae*

Mango stock or budwood

*Bacillus mangiferae*, *Chrys ficus*, *Chrys personatus*, *Aon aurantii*, *Phen hirsutus*

Mango fruit, not being the *bona fide* produce of Egypt.

*Cryptorhynchus mangiferae*, *Crypt gravis*, all species of *Trypetidae*

Fig (*Ficus*, all species)

*Chrys ficus*, *Chrys personatus*

Schedule IV gives the form of the permit to import seed potatoes free of customs duty.

Schedule V gives the form of the consignor's declaration as to origin of seed potatoes.

Schedule VI enumerates the pests and diseases from which seed potatoes must be free:—

(1) Potato tuber moth

*Phthorimaea operculella*.

(2) Colorado beetle

*Leptinotarsa decemlineata*

(3) Wart disease.

*Synchytrium endobioticum*

(4) Powdery scab.

*Spongospora subterranea*.

(5) Common scab.

*Achnomyces scabies*.

(6) Black leg.

*Bacillus phytophthorus*.



Any consignment of potatoes which on inspection is found to be infected with Powdery Scab or the Common Scab to the extent of more than 10 % of the total number of tubers with more than 10 % of the surface scabbed, will be considered as not free from disease, and [be liable to re-exportation] or destruction.

**Czechoslovakia.** — With the object of avoiding the introduction of the San José scale [*Aspidiotus perniciosus*], a Decree of 23 June, 1934 makes applicable to consignments of onions and other vegetables coming from countries infested by this scale insect the measures applied by Decree of 11 June, 1931 to consignments of fresh fruits. (*Deutsches Handels-Archiv*, Berlin 1935, 89. Jahrg., 1. Novemberheft, S. 3629).

\* \* By Ministerial Notification of 1 April, 1935 designed to prevent the introduction of wart disease of potato (*Synchytrium endobioticum*), importation during 1935 is prohibited of potatoes coming from countries other than Italy, Hungary, Spain, and Yugoslavia.

Import permits may be granted, in exceptional cases, for consignments coming from the Netherlands, Canada, Germany, Poland, and Austria. (*Ibid.*, S. 3634).

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*Phyllachora trifolii* (Pers.) Fuckel, *Placosphaeria trifolii* (Pers.) Trav., *Polythr. trifolii* Schm. et Kze. var. *platensis* [sic] Speg., *Phyll. umbilicata* Theiss. et Syd., *Plowrightia trifolii* (Pers.) Killian, *Dothidella trifolii* (Pers.) Baylis, Elliott et Stanfield. Latin diagnoses are appended].

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Fusarium-Systematik (S. 4-141, Abb. 1-33).

Fusarium-Pathologie (S. 142-316, Abb. 33-95).

Fusarium-Synonymie und -Homonymie (S. 317-338)].

## NOTES

**Seventh International Congress of Entomology.** — The Seventh International Congress of Entomology will be held at Berlin in 1938.

**Entomological Society of the U. S. S. R.** — On 26 November, 1935, the Entomological Society of the U. S. S. R., with headquarters at the Zoological Institute of the Academy of Sciences of the U. S. S. R., Leningrad, has celebrated the seventy fifth anniversary of its foundation.





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